सत्यमेव जयते
DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE & TECHNOLOGY
GOVERNMENT OF INDIA

birac®
Ignite Innovate Incubate

Azadi Ka Amrit Mahotsav

75 Biotech Women Entrepreneurs

डॉ. जितेन्द्र सिंह
राज्य मंत्री (स्वतंत्र प्रभार),
विज्ञान एवं प्रौधोगिकी मंत्रालय,
राज्य मंत्री (स्वतंत्र प्रभार) पृथ्वी विज्ञान मंत्रालय,
राज्य मंत्री प्रधान मंत्री कार्यालय,
राज्य मंत्री कार्मिक, लोक शिकायत एवं पेंशन मंत्रालय,
राज्य मंत्री परमाणु उर्जा विभाग तथा अंतरिक्ष विभाग
भारत सरकार

सत्यमेव जयते

DR. JITENDRA SINGH
Minister of State (Independent Charge),
of the Ministry of Science and Technology,
Minister of State (Independent Charge)
of the Ministry of Earth Sciences,
Minister of State in the Prime Minister's Office,
Minister of State in the Ministry of Personnel,
Public Grievances and Pensions,
Minister of State in the Department of Atomic Energy and
Department of Space,
Government of India

MESSAGE

BIRAC through its several programs has unleashed and elevated talented women to become innovators and health leaders. BIRAC's footprint has expanded over the last decade as experience and funding allow reaching women in STEM through a portfolio of interventions to take up entrepreneurial activities.

The Start-Up India and Make in India initiatives empower women entrepreneurs both at the initial stages of their business and later on. BIRAC has built a curated platform through Women entrepreneur Program which amplifies innovations and supports women innovators to network and continue to learn and grow.

BIRAC is committed to harnessing the talent of women in our country focusing on their capacity building and skill development, besides providing funding and mentoring to guide them in their operations. Women scientists and entrepreneurs are today's game-changers who drive the growth of the Indian economy.

I am hopeful to see more women joining the mark of successful entrepreneurs as BIRAC stays committed to empowering them through creating many newer opportunities.

(Dr. Jitendra Singh)
MBBS (Stanley, Chennai)
MD Medicine, Fellowship (AIIMS, NDL)
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FOREWORD

India's position as a global leader has been committed to diversity and women's advancement for catalyzing systemic change. Consequently, India is witnessing an upsurge in women led enterprises especially biotech focused.

BIRAC has been instrumental in expanding the power and influence of talented women in biotech sector catalyzing systemic change to achieve gender equality in leadership. Through its various programmes, regional centres, bioincubation network, and strategic partners BIRAC is trying to extend all possible support and encouragement to the women across the country including tier two and tier three cities to undertake entrepreneurship in the field of biotechnology.

This book highlights the achievements of 75 successful women entrepreneurs. I congratulate them and expect that these leaders shall become the flagbearers and inspiration for others.

Dr. Rajesh S Gokhale
Secretary, Department of Biotechnology
and Chairman, BIRAC

PREFACE

In India, the centrality of gender equality and women empowerment in all aspects of our developmental journey are now being recognized more than ever before. The country is now focused on inclusive growth and is committed to bring women in the mainstream.

India is the 3rd largest start-up hub in the world. Over the past ten years, the number of female entrepreneur-owned biotech enterprises have seen an exponential rise. BIRAC as an enabler of Biotech ecosystem has always been promoting women entrepreneurship through its several initiatives. Besides regular schemes, there are special funding programmes like SPARSH that cover women centric themeslike Maternal & Child Health. Through its network of BioNEST bioincubators, BIRAC has created 2 special bioincubators that are solely focussed on empowering women entrepreneurs. Another effort to boost women entrepreneurship, BIRAC in association with TiE Delhi has launched Women in Entrepreneurial Research(WInER) Awards to recognise and reward women entrepreneurs in Biotech sector. Till now, BIRAC has supported over 250 women entrepreneurs through its various funding schemes and incubation centres.

This booklet features the journey of 75 successful biotech women entrepreneurs supported by BIRAC.

With all the support and steps that BIRAC has taken, I am sure this can be considered as a Golden Era for Biotech Women Entrepreneurship. Market conditions, access to varied business opportunities, and female entrepreneurs' readiness to embark on entrepreneurial journeys create a winning trifecta.

Dr. Alka Sharma
Senior Adviser (Scientist 'H'), Department of Biotechnology
and Managing Director, BIRAC

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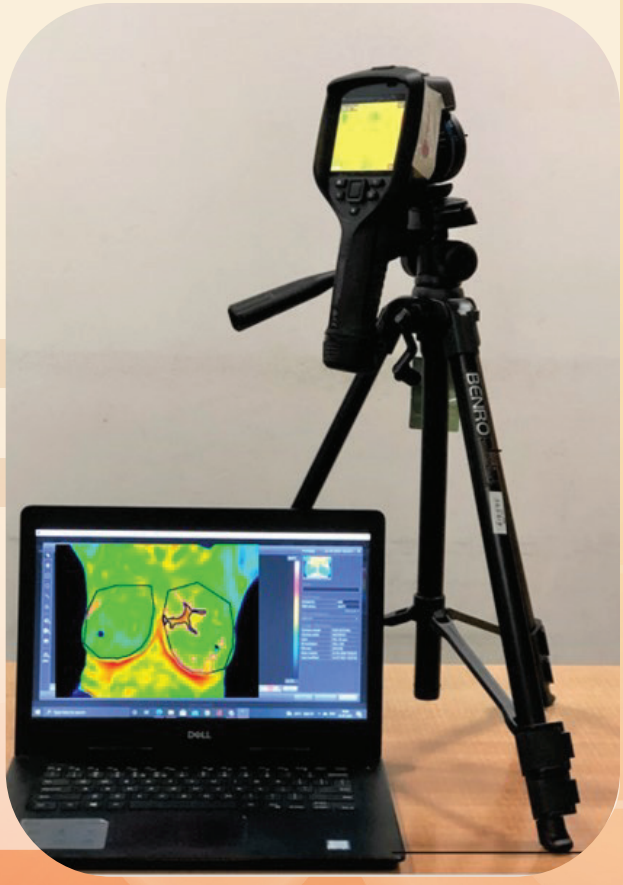
Niramai Health Analytix Pvt. Ltd.
www.niramai.com

Geetha Manjunath

Geetha holds a PhD from IISc and management education from Kellogg School of Management. She comes with over 25 years of experience in IT innovation. Before starting NIRAMAI, Geetha was a techno-manager and lab director at Xerox Research mentoring young researchers to develop business relevant innovations. After seeing her cousin succumb to breast cancer at close quarters, she started researching in that direction and decided to quit her job to develop her innovation into a usable product. She founded NIRAMAI that could detect early stage breast cancer.

Product/Technology

NIRAMAI Thermalytix is a novel radiation-free test for detecting early-stage breast cancer using Artificial Intelligence over thermal images. It is an affordable, portable, automated test that works on women of all age groups and maintains the privacy of the participant. Thermalytix has regulatory clearances from India, Kenya and Europe with a CE Mark, ISO 13485 and MDSAP International Quality Certifications.



Stage of development:

Commercialized

Impact:

NIRAMAI Thermalytix is deployed in 120+ hospitals and diagnostic centres across 25 cities in India.

IP status:

27 patents granted (including 11 US patents) and 21 filed

Other Achievements:

- T R Shamanna Best Student Award for topping across all branches of Engineering in Bachelors Bangalore University, 1989
- CSI Gold Medal for being top performer in Masters in Engineering at Indian Institute of Science, Bangalore in 1991
- NASCCOM IT Innovator 2009 award for SiteOnMobile, Jan 2010
- Winner of the 2010 Grand Challenges for Technologists, MIT Technology Review • Jan 2011
- IEEE Senior Member, Issued by IEEE • Jan 2013
- Past Chair of IEEE Computer Society Bangalore Chapter, 2016, 2017
- Governing Board of Cloud Computing Innovation Council of India , 2015
- Aegis Graham Bell Award , Aegis and India Mobile Congress - 2018
- Winner of BIRAC Women in Entrepreneurial Research WInER Award, Department of Bio Technology, Govt of India, 2018
- Self-Made Women 2020 : India's top 20 women achievers : Forbes India. (2020)
- Woman Entrepreneur of the Year Award 2020., Bio Spectrum India
- Accenture Vahini Innovator of the Year Award from Economic Times in 2020
- Inventor of 19 US Granted patents (total 23 granted patents)
- Member of Vision Group on Biotechnology, Dept of IT. BT and ST, Government of Karnataka, 2022
- Investments received: 7 million USD in equity funding; and 2 million USD as grant

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Zumutor Biologics Pvt. Ltd.
Zumutor.com

Kavitha Iyer Rodrigues

After earning an MS in Medical Microbiology from MAHE, Kavitha started her career as a scientist in Biocon in 2003. After working there for less than two years, she worked as Process Development Scientist at Millipore and as Project Manager, Virus Validation- Biologics at Avesthagen. Equipped with the knowledge of different aspects related to biologics, the urge to become an entrepreneur motivated her to start Inbiopro, a global biotechnology enterprise in 2007 along with Sohang Chatterjee. In 2010 Strides Arcolab had acquired 70 % in Accel Partners-backed Inbiopro Solutions. This success encouraged Kavitha to start Theramyt Novobiologics, a niche Biosimilar to the Biobetter development enterprise in 2012.

Backed by industry experience of 12 years and deep domain, Kavitha, in 2015, started Zumutor Biologics focussing on developing targeted natural killer (NK) cell therapeutics. In a short span of time, under her leadership, the company has grown to a 25-strong science team that works seamlessly with a world-renowned scientific advisory board with expertise in immuno-oncology and clinical development. The company's assets include a pipeline of immuno-oncotherapeutics molecules, two proprietary antibody discovery platforms and a robust IP portfolio with a landscape beyond 2034.

Product/Technology:

Zumutor is a next generation Tumor-Directed IO therapeutics company driving transformational change by harnessing the power of NK cells

Asset	Discovery	Preclinical	IND
ZM008 Anti-LLT1 mAb Prostate Cancer, B-cell lymphoma, Glioma			IND Filing 2022
ZM012 TAA/NK cell receptor mAb Lymphoma & other undisclosed indications			
ZM014 NK cell receptor mAb Lymphoma			
INABLR™ Antibody Discovery Platform & Glyco-Engineering Platform			

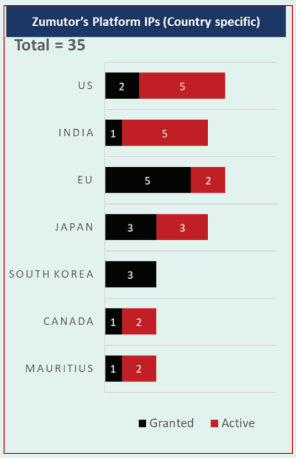
Stage of Development:

IND filing is scheduled by 2022 to initiate Phase I Clinical trial of the lead asset

Impact:

Zumutor is a next generation Tumor-Directed IO therapeutics company driving transformational change by harnessing the power of NK cells in modulating the Tumor Micro Environment (TME). Zumutor's proprietary Antibody discovery platforms: INABLR® fuel a unique pipeline of assets that is funded for Phase1. Zumutor's pitch in developing an exclusive scanning tool to screen various disease targets arose from exploring a large repertoire of antibody molecules that is represented by healthy and genetically diverse populations in India which was untapped so far. To the best of their knowledge this is the first time a display platform has been mapped/linked with wide and unique pool of untapped diversity in Indian population to screen for novel antibody molecules against various disease targets. The lead asset ZM008 is well on its way to an IND filing by 2022 followed by Phase 1 studies.

IP status:



Other Achievements:

- Zumutor has raised over USD 26.2 Million
- Kavitha received Biospectrum Entrepreneur of Year in 2020
- BioExcellence Emerging Company Award in 2018 from Govt. of Karnataka
- Women transforming India Award in 2018 from NITI Aayog
- Women Entrepreneur of the year to Kavitha in 2020 from Govt. of Karnataka

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KBCols Sciences Pvt. Ltd.

www.kbcolssciences.com

Vaishali Kulkarni

Vaishali Kulkarni is a Ph.D. graduate in Bioprocess Technology from Institute of Chemical Technology Mumbai. Vaishali along with her co-founder started Kbcols Sciences as an innovative technology driven startup committed to reducing the load of harmful chemical colors in almost every industry. She is a first-generation entrepreneur and has many international & national laurels for her work in microbial colors. She envisions making KBCols a world leader in space of natural & sustainable biocolors. She was honored with Asia's Top 10 sustainability superwomen award 2021 (by CSR works Singapore) for driving positive change in the world through her sustainability leadership.

Product/Technology:

KBCols Sciences, a biotech studio fuelled by innovation, is producing sustainable natural colors from small living safe micro-organisms. Microbes which are omnipresent in nature are sourced by KBCols through their technology to get natural colors of choice. The food which is supplied to micro-organisms to produce colors is composed of waste, thus making a completely circular production process. The final product (bio-colors free from any microbes) can be used as a universal drop in solution to dye majority of natural & synthetic fibers.

Stage of Development :

Validation ongoing (Industry run pilots)

Impact:

- KBCols technology can lead to atleast 40% reduction in carbon emission (per Tonne of product)
- KBCols technology can improve water quality of textile effluents by upto 50%
- The production process of bio-colors is a low carbon footprint process saving high on water and land compared to floral/vegetable dyes.

IP status:

NBA permission granted/ Filing initiated

Other Achievements:

- Raised Seed round: 600,000 USD in form of equity-based investment raised from Chiratae Ventures, Axilor ventures and DERBI Foundation. BIRAC BIG grant & BIRAC SPARSH grant (total: 200,000 USD). Raised seed round in 2020 from leading investors in India (Chiratae Ventures, Axilor Ventures & DERBI Foundation)
- Awarded the National award 2021 in startup category by Technology Development board (TDB), Department of Science & Technology, India.
- Collaborated with Ka-sha brand to launch the first fashion show collection in the world to be dyed using Microbial colors at Lakme Fashion week 2022, held in New Delhi, India.
- Collaborated with Hul Le Kes (Dutch Fashion house) in 2021 to create the first finished outfits using sustainable natural colors which are at display in Fashion for good museum in Amsterdam.
- Awarded as the top Startup at SERB-ICGW 2019 and the winner of grand prize at National Bioentrepreneurship competition 2018.

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Mallipathra Nutraceutical Pvt. Ltd.
www.mallipathra.com

Mousumi Mondal

Mallipathra Nutraceutical is an All Women led start up enterprise. Mallipathra was conceived with a vision of producing the world's most costliest medicinal mushrooms- cordyceps. This vision of the company was supported by BIRAC, CCAMP, KITS, BBC, SIR and MVIT. A pilot scale GMP, ISO & FSSAI Certified Cordyceps production facility has been established by the company. The Cordyceps based products were launched by BIRAC

Product/Technology

Malli's Cordyceps

The team has developed technology for growing cordyceps within 60 days as opposed to 365 days in nature. The products have been standardized for higher contents of active components like Cordycepin and Cordycepic acid. It is proved that cordyceps can be used as a nutraceutical for treatment of various diseases for the ailment related pro-sexual, anti-inflammatory, anti-oxidant, anti-aging, anti-tumour, anti-cancer, anti-leukemic, anti-proliferative, anti-metastatic, immunomodulatory, anti-microbial, anti-bacterial, anti-viral,anti-diabetic,anti-HIV,anti- malarial, anti-fatigue, neuroprotective, liverprotective etc. It is also superfood for sportsmen.

Stage of Development:

Commercialized

Impact:

Malli's Cordyceps is the most affordable form of Cordyceps mushrooms available to all. It is produced in 60 days as opposed to 365 days in nature and is enriched with bioactive component "Cordycepin" and "Cordycepic Acid", which is 10x higher. Affordable and Effective immunity booster to help immunosuppressed patients to recover faster. Effective Natural solution as an alternative to chemotherapy in Cancer patients. Tailored product forms for ease of consumption by both geriatric & paediatric nutrition segments. Affordable natural sports nutrition for enhancing stamina. Available in Vegetarian form and accessible to all through retail, ecommerce and distributor channels. Eco-friendly packaging.

IP status :

Filed Patent Application No: 202141028076

Other Achievements:

- Received BIRAC BIG, BIPP and KITS GoK grants
- National Award under Technology Startup Award category of 2022 by Technology Development Board, DST (GoI)
- TiE-Biotech Women in Entrepreneurial Research (WInER) Award, conferred by Hon Minister, Smt Smriti Zubin Irani during Global Bio India 2021
- BIRAC Innovator's Award conferred by Hon Vice President Shri M.Venkaiah Naidu, Hon Minister, Dr. Harsh Vardhan and Dr. Renu Swarup
- Finalist of the Emerging Star of the Year Award by Bangalore Chamber of Industry and Commerce (BCIC)
- WINNER OF IMMUNITY CHAMPIONS OF INDIA AWARD under the Immunity Startup Award Category by WHO-ICCIDD & Heal Foundation
- Successful Super Achiever Award by DMA under All India Women Entrepreneurs Award-2020
- SMART BIO AWARD 2019 under the Agriculture Startup category from Department of IT, BT and S&T, GOK

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String
SMART SCIENCE. CLEAN WORLD

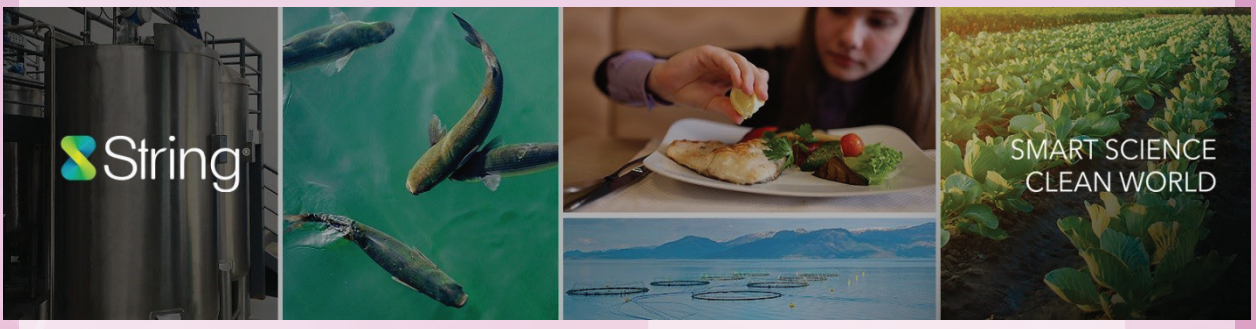
String Bio Pvt. Ltd.
www.stringbio.com

Ezhil Subbian

Ezhil played key roles in biobased product innovation at different startups/early-stage companies in the Silicon Valley ecosystem. She was part of early technology devel opment at three companies, Gevo, Codexis and Intrexon, in the biobased sector - All three companies have had successful IPOs. Building on her experience over the last 20 years in biobased product commer cialization and market growth. Ezhil's drive is to leverage the technology prowess of the west and the manufacturing capabilities of the east to develop innovations that can have global impact. She serves on the board of ABLE-India and CII-National Biotechnology Committee. Ezhil's work was most recently recognized with the Women Transforming India Award 2018 from United Nations, NITI Aayog

Product/Technology

String has a strong IP protected platform called String Integrated Methane Platform that enables production of high-quality ingredients from methane, via a fermentation process. String's proprietary platform leverages advances in synthetic biology, fermentation technology, chemistry and process engineering. String platform enables next generation ingredients for Animal Nutrition, Agriculture, Human Nutrition and Personal Care sectors, all manufactured using methane as the raw material.



Stage of Development

Commercialized

Impact:

With climate commitments and action plans coming out of COP26, there is now a broad consensus that effectively addressing climate change will require a complete transition to a low carbon economy. In India, agriculture accounts for 19.6% of the country's total greenhouse gas emissions which primarily include the livestock sector (54.6%) in the form of methane emissions. With its patented technology platform, String has enabled alternative proteins, crop inputs, cosmetic ingredients and other value-added ingredients for emerging markets, all manufactured using methane (from biogas or natural gas) as its primary input. While PRO-DG®, String's alternative protein product for animal nutrition, increases FCR by 26% in shrimp, Impakt®, String's crop input, increases crop yield by up to 40% under conditions of abiotic stress. This validation data is based on more than 2 years of customer/partner testing of products manufactured from String's own multi-purpose gas fermentation plant. String is currently in discussions with global alternative food companies, agro chemicals and feed manufacturers for distribution of its products and scaling up production.

IP status:

Multiple IP granted around product, process and biological strains in India, US, Europe, Malaysia etc. among other geographies.

Other Achievements:

- The startup has been a winner of multiple national and international awards including Future Food Asia Award, L'Oreal Innovator Runway Award, Hello Tomorrow Food & Agriculture Winner, BIRAC Innovator Award and Unreasonable Impact Member.
- Investment Received from TBD Venture Capital, SPARSH and SBIRI Grants received from BIRAC, DBT.

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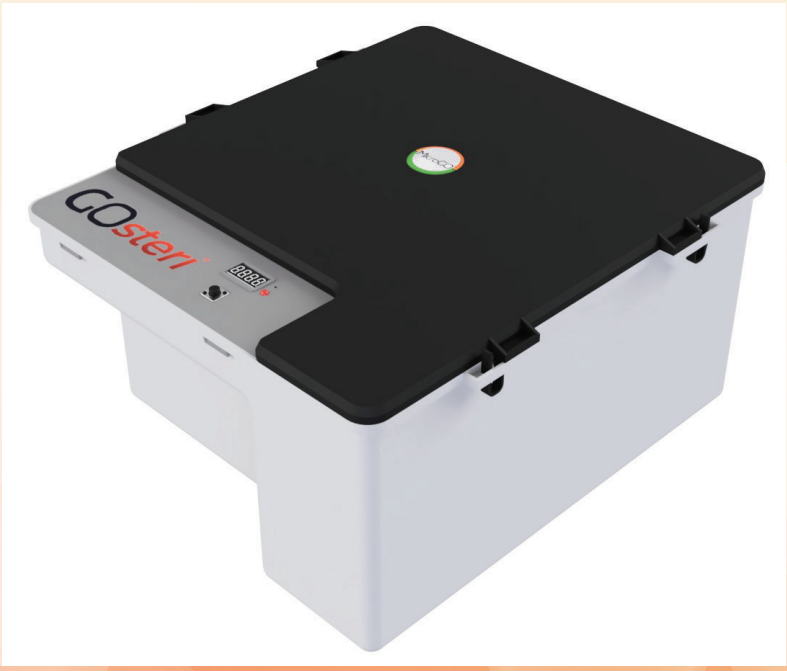
MicroGO LLP
www.microgo.in

Rachna Dave

Rachna completed her doctoral studies from Sardar Patel University, Gujarat in 2008 and went for another graduation student at Polytechnic University of New York during Ph.D. She returned to India under DST`s FAST Track Scheme for Young Scientist and joined at BARC and continued as Staff Scientist. At BARC she developed various drug delivery systems for health care application with societal relevance. The technologies she developed (and patented) are transferred to various partners in India for commercialization. In 2016, she founded MicroGO LLP, with a vision to build an India where prevention is an effortless behavior to reduce wastage, increase resource quality & improve life. MicroGO is DIPP certified Startup- supported by BIRAC, DST, IKP-Hyd and TANSIM.

Product/Technology

Hygiene and infection control solutions keep lives safe and businesses safer. Their approach is in building a pipeline of smart products that not only provide with the right science but save resources and provide highest level of sustainability. Their Products include GOassure™ series, GOpure™ series, GOclean™ series, GOfresh™ series, GOsteri® combined with their motto: Service first and Sale second.



Stage of Development

Commercialised

Impact :

By 2022 - 5100 CBM of water saved and 100% compliance in hygiene at all customer sites..

IP status:

7 Patents (granted/applied for) and 8 Trademarks.

Other Achievements:

- ICO Award IKP- Hyderabad, 2022
- ACT (Action against Covid) Award, 2020
- DST-CAWACH award, Govt of India, 2020
- Grand Challenges India from PMU-BIRAC and Bill and Melinda Gates Foundation award, 2020
- FAST track award for COVID solutions from BIRAC, Govt of India, 2020
- Presentation before Hon. PM of India at Prarambh Summit, 2021
- TANSEED Award, Govt of Tamil Nadu, 2021
- Investments received: Pre-series A (2022) & BIG and SBIRI Grants, DBT, Govt of India
- Young Applied Technologists Award, 2012
- Biotech Product, Process Development and Commercialisation award, 2019.
- COVID WARRIOR Award, IKP Hyd, 2020

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Xcellence in Bio Innovations
and Technologies (xBITS) Pvt. Ltd

www.xbitsinnovations.com

Suman Kapur

Suman is the Director and Promoter at Xcellence in Bio Inovations and Technologies Pvt.Ltd.

Product/Technology

RightBiotic (The Fastest Antibiotic Finder) is the flagship product of xBITS and the fastest system for carrying out culture and sensitivity testing. RightBiotic is affordable and yet provides you a report in just 4 hours as opposed to ~4days. The report consists of both the identification and AST (Antibiotic susceptibility test) results. This system comes with a well-designed kit to be used with the biological sample. The kit contains media vial with proprietary media for accelerated bacterial growth and pre-functionalized strips with a panel of 42 (6x7) antibiotics. RightBiotic platform is also suitable for rapid diagnosis of Tuberculosis, Sepsis, meningitis, etc. It is based on the basic tenets of clinical microbiology wherein growth of bacteria is allowed in a specialized medium with measurement of inhibition of growth of bacteria in the presence of any given antibiotic. It is very easy to use and does not require trained personnel.

Stage of Development:

Commercialized

Impact

Urinary tract infections (UTIs) alone pose a serious health problem affecting millions of people each year with total cost for treatment being in billions of dollars. Worldwide, about 150 million people are diagnosed with UTI each year. In India, nearly 10 lac (01 million) people suffer from UTI per day. The irrational use of antibiotics, and the resultant emergence of super bugs, has led to an alarming increase in Anti-Microbial Resistance (AMR). A large share of that expense and misuse of antimicrobials comes from 48 hours wait for the infected sample to be cultured in the lab and tested for antibiotic sensitivity. It has resulted in increasing incidence of resistance to these therapeutic agents in common pathogenic bacteria. In this direction, an ultra-rapid test for determining antibiotic sensitivity of human pathogens has been developed. This novel point-of-care, low-cost portable device is usable in field, a doctor's clinic, in laboratory settings and hospitals, for testing for antibiotic sensitivity of pathogens found in human biological fluids and tissue scrapings.

IP status

PCT Filed, several patents granted

Other Achievements:

- RightGlucose: Cheapest Glucometer –non-amperometric
- RightCardio: Hand held device for measurement of Total Cholesterol and Triglycerisdes
- RightSure: A herbal mouthwash with anti-coronavirus, antibacterial and antifungal activity
- Investments received
- BEST India 2014 award bestowed by Association of Biotechnology Led Enterprise (ABLE), India: RightBiotc team
- Gandhian Young Technology Innovation award 2015 bestowed by National Innovation Foundation, India: RightBiotic team
- BITSAA 30 under 30 award 2015: Ms Shivani Gupta of RightBiotic team
- BIRAC- DBT, GOI under their SPARSH scheme, 2015: Dr Suman Kapur
- Women Entrepreneur Quest (WEQ) 2015: Dr. Suman Kapur
- India Innovation Initiative, I3 jointly bestowed by CII and DST, GOI, 2015: RightBiotic team
- TiE Hyderabad 2016 International Start-up Competition, held on 15th December 2015: RightBiotic team
- TiE Asia Regional 2016 International Start-up Competition, held on 5th February 2016: RightBiotic team
- 3rd batch "In residence scholars' program" at Rashtrapati Bhawan: RightBiotic team
- 100 Women Achievers in the category of 'Science, Innovation and Technology', Ministry of Women and Child Development, GOI: Dr. Suman Kapur
- Innovation Ninja award bestowed by Ricoh Education Excellence award 2016: Dr. Suman Kapur
- Innovation for India Awards 2016 bestowed by Marico Innovation Foundation: Dr. Suman Kapur
- Venus International Women Awards-VIWA 2018 bestowed by Venus International Foundation: Dr. Suman Kapur
- Prof. Indira Parikh 50 Women in Education Leaders" citation, conferred on World CSR Day at the World Eductation Congress on 5th July 2018: Dr. Suman Kapur
- Best Technology Start up award bestowed by Technology Development Board, DST, GOI, 2018: Dr. Suman Kapur
- Among the top 80 women in the "Women Transforming India (WTI)" initiative of Niti Ayog, GOI, 2018: Dr. Suman Kapur
- Among the top 200 women in the "Women Entrepreneurs, WEP initiative of Niti Ayog, GOI, 2018: Dr. Suman Kapur
- 51 Most Impactful Social Innovators (Global Listing) conferred on World CSR Day at the World Sustainability Congress on 17th & 18th Feb 2019: Dr. Suman Kapur
- Amity Excellence Award for Best Woman Innovator, 2020, bestowed on 19th February 2020 during INBUSH ERA WORLD SUMMIT 2020 at Amity University, Noida Campus, Sector -125, Uttar Pradesh-201313, India.
- Aegis Graham Bell award 2019 in the category of Health Tech Category bestowed on 27th Feb 2020 at NDMC Convention Center, New Delhi
- DMA All India Women Entrepreneurs Award 2021 in the category of Super achiever for the year 2021, awarded by DMA, Delhi on 22nd April 2021

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Ahammune Biosciences Pvt. Ltd.

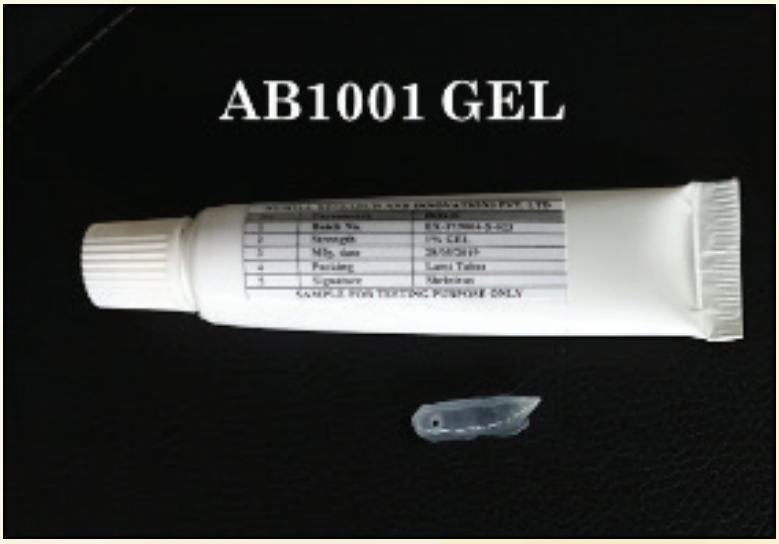
www.ahammune.com

Parul Ganju

Ahammune was set up with a vision to translate the scientific knowledge that she gained during her PhD in skin biology to develop products that could be useful for the society. As a team, they want to enrich the lives of people throughout the world by removing the fear and stigma associated with skin diseases. For this, they are using our science to develop new and comprehensive treatment strategies.

Product/Technology:

AB1001- New drug candidate for vitiligo. Developed a new chemical entity as a topical treatment for the debilitating skin depigmenting disorder, vitiligo with first-in class mechanism of action. It has been demonstrated to be safe and efficacious using in vivo disease models. With this product, it is aimed to fulfil the lacunae in vitiligo therapeutics wherein till now no cure exists.



Stage of development:

Validation - Phase 1 Clinical Trials

Impact:

The impact of vitiligo goes beyond skin. Burden of Vitiligo is huge in India, with certain regions like Gujarat having an estimated 8% of population being affected. The fact that depigmentation is more apparent on darker skin and social stigma and exclusion associated in culture makes vitiligo of extreme relevance to the Indian society. The are providing new hope to vitiligo sufferers through our new treatment.

IP status:

3 PCT Filed and 1 Granted Patent

Other Achievements:

- Women Scientist of the Year (2021) awarded to Dr Parul Ganju, CEO by OPPI
- Winner at National Bio-entrepreneurship Competition
- 2nd Prize at TiE Global Women Pitch Competition, Dubai in 2021 with equity free grant
- Investment received from Angel Investors, Venture Capitalists and BIRAC funding

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Nanosafe Solutions Pvt. Ltd.
nanosafesolutions.com

Anasuya Roy

Anasuya completed M. Tech and PhD from IIT Delhi from 2013 and 2019 respectively. She is the recipient of the prestigious DAAD-IIT Master Scholarship program at University of Stuttgart, Germany. Incorporated Nanosafe Solutions as an academic spin-off from the fundamental research of the PhD dissertation. Although existing indigenous technologies and the expertise and knowledge is quite evident in academic publications, apparently none of them is scaled up to industrially required volumes. Technology licensing is a tricky subject, often not materialising successfully, as it fails to bring a business minded industry and a research-oriented academician together in one table. The B2B technologies focus on providing antimicrobial solutions to the polymer, textile, automobiles, cosmetics, paints and electronic industries. Product section has a range of antiviral high filtration reusable masks (Brand name: NSafe), a first of its kind antimicrobial water bottle (Brand name: AqCure) and recently, an FDA approved zero alcohol sanitizer (Brand name RubSafe).

Product/Technology:

AqCure antimicrobial water bottle is incorporated with a patented active copper technology, to counter unwanted growth of microbes in water bottle over time. These copper-polymer hybrid water bottles ensure that there is zero microbe formation starting from 30 minutes to over a period of 10 days. These unique bottles also reduce surface transmission of microbes as their outer surface is also resistant to microbes.

Stage of Development:

Commercialized

Impact :

Containers are used by the women of low-income households to collect water from improved (public taps, tube wells) and unimproved (ponds, rivers) sources and is stored at home for drinking, cooking and cleaning. Microbes present in source water in small quantities proliferates during storage in closed HDPE containers in presence of humidity. At the point of consumption, which is typically after 18-24 h for the bottom part, elevaed coliform counts ranging from 2-6000 CFU/ 100 ml are encountered. As of now, nano-silver based formlations are the widely accepted antimicrobial solution in the plastic industry although their ecotoxico logical effect is largely unnoticed. Notable companies are BioCote (US) and Microban (US), both relying on nano-silver technology. The Company aims to capture this market by providing cost-effective indigenous copper based antimicrobial solutions. Currently they have 5000+ D2C customers and 5+ distributors.

IP status:

1 Granted and 1 Filed Patent

Other Achievements:

- National Tech Excellence Award 2022 (Women Entrepreneur-Young) by Technology Development Board (TDB), DST
- All India Women Entrepreneurship Award (Super achiever) 2021 by Delhi Management Association (DMA)
- WASME SME Excellence Award 2021, by World Association for Small and Medium Enterprises (WASME), New Delhi
- Biotechnology Ignition Grant (BIG), by BIRAC, DBT, Government of India
- DST NIDHI Seed Support Scheme, (Special COVID-19 Call) by DST, Government of Indi, For NSafe antimicrobial reusable COVID19 mask

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Agatsa Software

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Neha Rastogi

Neha is an electronics engineer running a MedTech startup called Agatsa and is currently working on scaling marketing and sales department of Agatsa. Her experience with over a decade of experience in creating affordable and technologically advanced healthcare products. Engineers by qualification, Neha and her husband Rahul chucked their corporate jobs in software development and consumer electronics, respectively, to build what they claim is the world's only leadless, keychain-sized ECG device that can provide a complete cardiac diagnosis anywhere, anytime. Along with being the Founder of the company, she was also the one who conceptualised and built the prototype of its flagship product – the SanketLife ECG monitor.

Product/Technology

SanketLife is the world's first TOUCH based pocket ECG device which is fully medical grade 12-Lead ECG device and is the ONLY in the world which can take 12-Leads of ECG, which is the gold standard, without any leads or wires/electrodes/gel attached to the body. Sanketlife is a global patented (in process) technology and hopes to disrupt the ECG market in a big way. Since, anyone can perform his ECG himself, SanketLife is a game change in the diagnosis, monitoring and management of Heart diseases and even Heart attack. anti-leukemic, anti-proliferative, anti-metastatic, immunomodulatory, anti-microbial, anti-bacterial, anti-viral, anti-diabetic, anti-HIV, anti- malarial, anti-fatigue, neuroprotective, liverprotective etc. It is also superfood for sportsmen.

Stage of development:

Commercialized

Impact:

Having sold approximately 40K devices in India, the doctors who are using them are using for multiple purposes like quick screening and diagnosis, remote camps, home healthcare and remote disease management. Saved at least 5 lives, when a problem in heart was diagnosed using their device and an immediate treatment was started, thus saving life.

IP status:

3 Indian and 1 Global patent are filed, out of which 1 is granted.

Other Achievements:

- First Indian start-up to make medical devices a D2C brand
- First Indian start-up to manufacture the devices in India
- Made our footprints from all nook and corners of the country including islands of Andaman Nicobar and Lakshadweep
- Shipping internationally in countries like Germany, UK, US, France which are known for innovations.
- Frost and Sullivan award for best product in Cardiac Practices
- Healthcare champions award by World Health and Wellness Congress
- Spirit of Manufacturing award by TiE
- Millenium alliance
- IIGP 2.0
- Business world Techtors award
- Aegis Graham Bell award for best innovation in Diagnostic category.
- Mashelkar award for best Frugal innovation
- BIRAC-TiE Women Entrepreurial Research (WInER) Award
- Digital woman Award by ShethePeople
- Investments received- $3Millionn

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BioPrime® AgriSolutions Pvt Ltd

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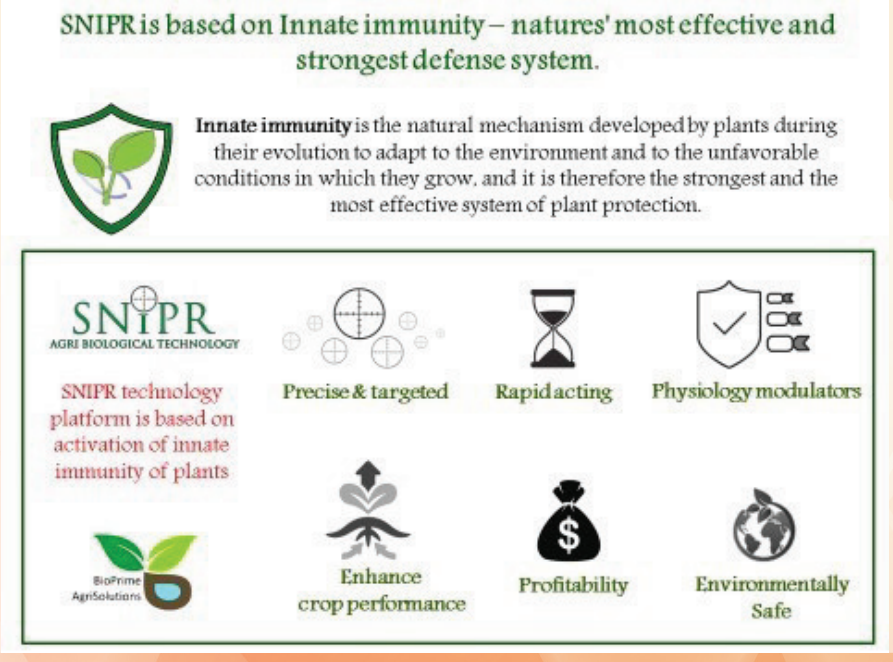
Renuka Karandikar

Renuka is a PhD graduate in Plant Sciences from University of Pune. She has also done her post doc in genetic engineering in collaboration with Cambia, a Australian company. A after completing her doctoral research in plant biology, Renuka co-founded BioPrime with her batchmates At BioPrime, Renuka and her team develop biological solutions for farmers, to enable the full potential of their seeds and crops. Having to work with modern-day research and on optimising it for the grassroots level has helped Renuka formulate innovative solutions that facilitate change which a farmer can visualise.

Product/Technology

BioPrime is developing effective & affordable Next Generation Agri biologicals that helps make crops Climate resilient using two proprietary discovery platforms SNIPR and Bionexus- protecting yields and crops from fluctuation weather, untimely rains, temperature stress and water stress to name a few. Bioprime has developed a proprietary, award winning biomolecule discovery platform called SNIPR (Smart Nanomolecules, Induced Physiological Response).



Stage of Development:

Commercialised

Impact:

SNIPR Biologicals help in reduction of cultivation costs, and crop losses due to climate change. Till now Bioprime has added over 20 Cr INR in farmer income.

IP status:

3 Patents filed, 1 granted

Other Achievements:

- Cisco Agriculture Challenge 2022
- Social Alpha Challenge 2021
- Agri Input awards 2021
- FICCI Agri startup Awards 2020
- Atal New India Challenge (ANIC), Niti Aayog 2020
- BIRAC TiE Women in Entrepreneurial Research (WInER) award
- National Bio Entrepreneurship Competition (NBEC) 2018
- Investments received: Birac Seed Fund, Birac Leap Fund and Seed Investment from Omnivore Capital. 7 million USD in equity funding; and 2 million USD as grant

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www.revy.co.in

Vanita Prasad

Vanita is a PhD graduate and Environmental Biotechnologist with more than 25 yrs. of experience in related field. She has a long association with the industry as Consultant Scientist while heading R&D functions of various waste management companies. She holds patents for specific innovation in the field of Waste management and Renewable energy. Under her entrepreneurial journey, she has floated her own company namely - REVY Environmental Solution in 2017 focusing on improvisation of Conventional Biomethanantion process. During this journey she has received many awards and accolades from Government of India as well various partners of start-up ecosystem at national and international level.

Product/Technology

REVY is providing in situ solutions in waste management to several industries using its optimized Waste Water Treatment Technology (WWTT). REVY develops "Designer Bio-culture" using IP protected combinations of bacteria/other microorganisms in the form of 'Anaerobic Granulated Sludge', 'Aerobic Biomass' and 'Biomass Growth Enhancement Formulations (BGEF)' that treats hard effluents like petroleum, chemicals, dye etc. converting waste into re-usable products such as Bio-methane and Bio-Energy. REVY's Seed Biomass supports faster operation of aerobic/anaerobic reactor fixing problem in-situ and finding solutions for ailing units in sector agnostics manner.

The Granulated Sludge developed by REVY can withstandhigher loading rate with a capacity to reduce higher COD/BOD load while giving better biogas yield in comparison to flocculent systems.

BGEFs formulations created by REVY ensures nutritional requirement of the biomass to remain healthy and active through continuous enhancement of MLVSS.

Stage of Development

Validation

Impact of product

The product developed is highly economical uses an industrial effluent as feed material. This ready to use product will provide 26X faster start of AD/ UASB reactors.

IP status

1 granted, 1 filed, 1 trademark

Other Achievements:

- Finalist Smart Fifty Award conferred by Department of Science and Technology, GOI and IIMCalcutta nnovation Park
- Felicitated for "Success Story Award" during India International Science Festival, 2018.
- Winner of "Swachch Bharat Grand Challenge" organized by Start-up India
- Winner of "Integrate to Innovate Challenge" organized by Invest India.
- Winner of YESSCALE under cleantech category and is being funded by Villgro
- BIRAC-TiE Women in Entrepreneurial Research (WInER) Award
- Winner award in the ICC start up pad at Bengaluru.
- Winner of ASSOCHAM Start-up Launchpad, Pune.
- Winner of Social Alpha Urban Liveability Challenge,2019 under Cleantech category
- Awarded as 'Frontrunner' in Cleantech sector by ITC Go Global Awards 2021
- Winner of National Start Up Awards 2021 under environmental Biotechnology company
- Conferred Global Technology Innovation Award in MSME Category by GITA
- Winner India-Israel Innovation Challenge 2017 organised by Invest India
- Investments received – Rs 1.4 Cr Co-invested by EDC, FISE and STBI

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Serigen Mediproducts Pvt. Ltd.
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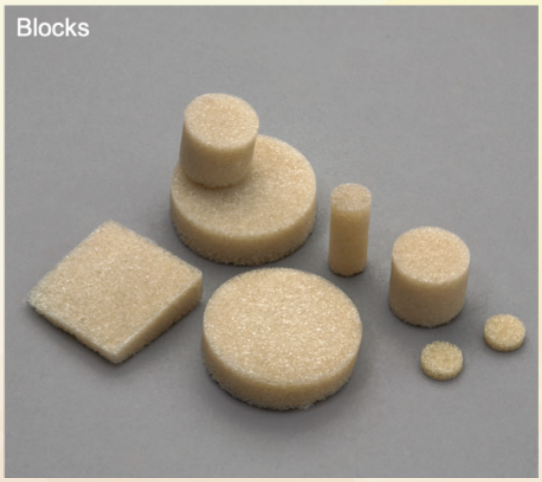
Anuya Nisal

Anuya Nisal completed her PhD in Chemical Engineering from IIT, Bombay and Masters in Materials Science and Engineering from University of Delaware, USA. She has prior experience working as a scientist in the GE Plastics - John F Welch Technology Centre. She has more than 10 years of experience working in the field of polymers as biomaterials for tissue engineering and regeneration. Her work has been extensively published and she is a co-inventor on several patents describing innovative polymer processing protocols. She is the recipient of "Leaders in Innovation Fellowship" from Royal Academy of Engineering, UK and has recently been awarded the "Young Entrepreneur Award 2020" by Indian National Academy of Engineering.

Serigen is a spin-off company of CSIR-National Chemical Laboratory, India's premier chemicals and materials research lab. And is an incubatee of Venture Center (Entrepreneurship Development Center), government approved pilot manufacturing facility, that is compliant with ISO 13485, a global medical device quality standard.

Product/Technology

Serioss - an osteoconductive bone void filler, is used to fill large cavities in the bone, formed due to an accident, an infection or even due to bone cancer. Serioss is available in different shapes, sizes and forms and the surgeon can choose depending on size and shape of cavity as well as the anatomical location of the defect. In lab and animal studies, Serioss shows an unprecedented 2X improvement in bone repair parameters compared to the best global alternatives, resulting in reduced repeat fractures. Serigen is the first company globally to complete surgery of 10 patients using silk for bone repair.



Stage of Development

Under pilot clinical investigation

Impact:

Serioss is a strong contender to capture the 3 billion USD global synthetic bone void filling market.

IP status

Serigen technology has been protected via patents that have been granted in India, US, Japan and Europe

Other Achievements:

- Serigen has been recognised through various national and international awards –; Finalist - National Bioentrepreneurship competition 2017 and 2018.
- Serigen Founders have been recognised for their entrepreneurial efforts through several prestigious awards– Chandaben Mohanbhai Patel VASVIK Award 2021, INAE Young Entrepreneur award 2020, Leaders in Innovation Fellowship – Royal Academy of Engineering, UK.
- Investments received: INR 6.5 Crores (Govt. grants, Angel and promoter investment)
- National winner – Empower TIE Women Global competition 2021, National Award for Polymers in Public Healthcare 2019-20, Dept. of Chemicals and Petrochemicals

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Prantae Solutions Pvt. Ltd.
www.prantae.solutions

Sumona Karjee Mishra

Sumona started her journey to address the gap of early diagnosis that she personally faced during her pregnancy that complicated due to pre-eclampsia. While venturing into this path, she realized the gap is much deeper and wide that she perceived. However, the challenges of translating science and technology into usable product kept her motivating and the grant support from innovation funds like BIRAC-BIG etc. keep them moving. She learned many important aspects of business as well including, project management, finance, human resource, branding and so on. She upgraded her skills with opportunities like Ignite Fellowship and Goldman Sachs- NSRCEL 10K Women fellowship. She learned how to stand against crisis with the COVID19 pandemic not only survived but grew and developed 2 ICMR validated COVID 19 diagnostic product and completed the product development of Proflo-U. Currently, she is now venturing into the next phase of the journey of growth and expansion.

Product/Technology

Proflo-U® is a world's first, kidney self-health monitoring platform that does urine microalbumin measurement with clinical-grade accuracy, yet simple, portable and affordable. The device is BLE and IoT enabled, where your data is stored in cloud to have access anytime anywhere. for the ailment related pro-sexual, anti-inflammatory, anti-oxidant, anti-aging, anti-tumour, anti-cancer, anti-leukemic, anti-proliferative, anti-metastatic, immunomodulatory, anti-microbial, anti-bacterial, anti-viral, anti-diabetic, anti-HIV, anti- malarial, anti-fatigue, neuroprotective, liverprotective etc. It is also superfood for sportsmen.

Stage of Development

Pre-Commercialized

Impact

Proflo-U with its innovative technology can fill the diagnosis gap and reduce the burden of CKD in India and globally.

IP status:

4 Patents granted

Other Achievements:

- Listed as one of the top medical manufacturing companies (2022 publication) by Biospectrum.
- CII- IPR award for the year 2018, 2019, 2020 and 2021
- Rashtriya Swayamsidha Samman, by JSPL Foundation 2019
- Pride of Odisha, Government of Odisha, 2018
- BIRAC TiE Women in Entrepreneurial Research(WInER) Award
- BIRAC Ignite Fellow
- EdeX 40 under 40
- TEdX speaker
- Investments received of INR 4.1 Cr

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Ezyspit Soluations Pvt. Ltd.
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Ritu Malhotra

Ritu is the Co-founder & CEO of Eventuate Innovations Pvt Ltd. She has been the Forbes India30 Under 30 & Forbes Asia 30 Under 30 honoree, for driving positive change worldwide. Ms Malhotra is a technology enthusiast who strongly believes that solutions to the biggest problems that our society faces can be found in the implementation of simple technologies. The technology is EzySpit - World's first spit pack & world's first liquid disposal bin, we are converting waste to value. It solidifies the spittle/liquid/Vomit and converts it into a material in10sec. Made up of bio-degradable material (food grade& Environmental Protection Agency verified) after use it gets converted into hybrid fertilizer.

Eventuate Innovations provide these hybrid fertilizers to farmers for agriculture use at a cost of 4Rs/kg. Ms. Malhotra considers the support from BIRAC and the recognition from BIRACTiE as very prestigious.

Product/Technology

EzySpit is a novel technology that solidifies the spit droplets in less than 10 seconds and is equipped with a material that traps and locks the microbes present in saliva. It is biodegradable, temper-proof, odour-free, multiple-time usable, sustainable, and durable. It is designed with the idea of "Throw & Grow" it is the conception of developing plants from human spit waste and is recognised as a Top Five Prevention Solution Tackling the COVID19 pandemic by Status Insights Research organization. This invention is an effective tool to combat airborne diseases like COVID-19, TB, swine flu, etc.

Stage of Development

Commercialized

Impact:

The product has impacted 2,40,00,000 people and the newly created spitting zones are a revolutionary step to attract cleanliness and greenery.

Clientele & CSR 1) Government of Haryana 2) Chattisgarh Government 3) Government of Andhra Pradesh 4) Government of Tamil Nadu 5) Government of Maharashtra 6) Reliance Industries Limited 7) Kingsway Hospital 8) Tata 9) Hitachi 10) Raymond's 11) AIMS 12) Aurangabad Municipal Corporation 13) Central, Northern & Eastern railway 14) CII (Confederation of Indian Industry)

IP status:

In Process for Grant

Other Achievements:

- Recognised by Lokmat as Loksatta Tarun Tejankit award 2021
- Nominated by UN environment for hygiene awards
- Recognised by Forbes Asia as Forbes30 Under 30
- Recognised by Forbes India as Forbes 30 and 30
- Recognise by BIRAC in the Global bio India Summit 2019 as a woman entrepreneur of the Year 2019
- Recognised as TiE BIRAC as Women in Entrepreneurial Research(WInER)
- Recognised by CII as a woman startup of the Year 2018
- Awarded as women startup of the year 2018 by Godrej
- ISGF Awarded as "Smart Startup of the year 2019" by India Smart Grid Forum
- Awarded by Times of India as " Nagpur Heroes 2019"
- Awarded By NMC (Nagpur Municipal Corporation) as "Mayor Innovation award 2019 "
- Awarded as women startup of the year by CAIT (Confederation Of All India Traders)
- Investments received: 5 crore and 35 lakhs

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www.startoonlabs.com

Mythreyi Kondapi

Mythreyi and Suresh, a Husband-wife duo and alumni of IIT's and IIM's are the founders of Startoon Labs Private Limited. The Company was founded with the aim to address gaps in the healthcare ecosystem. Startoon Labs is ISO 9001:2015 certified and registered under DPIIT. They have a complete in-house R&D and Manufacturing in India.

Product/Technology

Pheezee® is a battery operated, non-invasive wearable device for the Physiotherapy and Rehabilitation sector of Healthcare. It measures Range of Motion (ROM) of various joints of human body and their associated Muscle Activity (Surface EMG) with an accuracy of 98%. It is a novel prognostic device for monitoring, tracking and quantifying recovery of patients undergoing physiotherapy post neurological (stroke and spinal cord injuries) and musculoskeletal disorders (joint replacement surgeries etc.). The device can be used for In-Clinic Physiotherapy, Home Physiotherapy and is also Tele-Physiotherapy enabled. The device is certified as per IEC for Product Safety.

Stage of Development

Pheezee is commercialized and was launched in Dec 2021 by Dr. Guruva Reddy, M.D, Sunshine Hospitals and Padma Bhushan Dr. Varaprasad Reddy, Founder of Shanta Biotech Ltd. It is currently being sold in B2B segment to various Physiotherapy Clinics, Rehabilitation Centres and also to Corporate Hospitals mostly in Hyderabad and across India by Direct Sales and through our Distributors in India.

Impact

In India, 19.3% of the population suffer from chronic pain and 20% of the population suffer from various musculoskeletal disorders. The indirect costs of musculoskeletal disorders in terms of wages and productivity lost alone contributes to a loss of 1.3% to 2.4% of India's GNP. In order to help them achieve a better quality of life, effective physiotherapy treatment is a vital component that can directly impact their well-being.

On the other hand, lack of quantified data on the recovery path of patients and their improvement over time diminishes patients' trust on the physiotherapist which directly leads to decreased treatment outcomes. The availability of such quantified data can also help physiotherapists in creating better treatment modalities, achieving faster and better results.

Their device, Pheezee® aids them in gaining real-time insights on the impact of their therapy and also gener ates reports for future reference, which can be shared with patients and serves as a tool for monitoring outcomes over time. It enables physiotherapists to engage in evidence-based physiotherapy, which directly helps with providing better outcomes for patients and increases patient satisfaction. As on date, 50+ Hospitals are using Pheezee and 1300+ Patients got to know their improvements using Pheezee reports

IP status

2 patents filed for Indian market

Other Achievements:

- Received investment of INR 2.8 Cr
- Recognized as Top 50 womenprenuers by T-Hub, Govt. of Telangana
- Ranked among TOP 50 Startups in INDIA (SmartFifty 2018 by IIMC + DST, Govt. of India)
- Among TOP 5 awarded Start-ups @ CAHOTECH 2019 - IIT Madras Research Park
- Winner of third position at HSX19, National Entrepreneurship Conclave organized by Kickstart, Headstart
- Winner of Best Potential Award at Samsung GSAP 2018
- Winner of Gold Award at Medicall Made in India Innovation Awards 2019
- Winner of Most Innovative Idea - P&S Track in BMC, GES 2019, organized by IIT Kharagpur
- Winner of First Prize in Healthcare, HealthTech category at IKMC 2018, organized by IKP

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Brainsight Technologies Pvt. Ltd.
www.brainsight.com

Laina Emmanual

Laina Emmanual is co-founder and CEO of Brainsight Pvt. Ltd. She is an MBA from Indian School of Business and a B.tech in Electronics and Communication from NIT. She has14 years of experience in technology, international development and business.

Product/Technology

VoxelBox is a SaaS platform, augmented with ML and 3D visualization,that enables to build connectomic profile in a few clicks. This gives clinicians greater insights into a person beyond just symptoms. Clinicians can upload advanced neuro-imaging modalities like fMRI, DTI and sMRI. These give insights into the connectivity and activity patterns of the brain. With our tools, clinicians will be able to focus on building personalized interventions for patients, such as personalized surgical planning for brain tumor surgeries, earlier diagnosis of dementia, and earlier confirmation of psychosis sub-types.

Stage of Development

Validation stage.

Impact:

Neuropsychiatric disorders are the third leading contributor to the Global Burden of Disease [NIMH]. Over 98 Million people worldwide suffer from neuropsychiatric disorders. This includes 50 million people with Dementia [WHO] and 48 Million people with Psychotic disorders.

3D Connectomics (akin to 3D Google map of the brain) has the potential to revolutionize the diagnosis, treatment and drug options for these patients. It can enable earlier and deeper analysis of neuro-psychiatric disorders; enable better targeting of existing drugs and provide meaningful and actionable insights for better building of drugs. This is a marked improvement over current clinical methods which are based on verbal interviews about family genealogies and patient symptoms for psychiatric disorders and only structural MRI for neurological disorders. The former approach is subjected to biased interpretations, while the latter does not have sufficient features for early diagnosis. As a result, patients lose critical years, where their risk of relapse doubles, long term hospitalization becomes inevitable and in the worst case, leads to extremities like suicide [4, 5] and physical impairment.

VoxelBox democratizes this and enables clinical teams across the world to build a connectomic profile in a matter of a few clicks.

IP status

1 granted, 7 filed.

Other Achievements:

- Raised investment of INR 1.13 Cr
- Selected to become a part of the second cohort of the GE Healthcare's Edison start-up collaboration program (Sept '20)
- Selected to be a part of the Netapp Accelerator Program (Oct '20)
- Selected to be a part of the P4 Precision Medicine Program 2021 (Dec '20)
- One of top 15 medtech companies in Asia-Pacific region and part of the prestigious Medtech Accelerator Program, Singapore
- Selected in the Google for Startups Accelerator Program 2021 (Dec '21)
- Selected as 1 of the 6 start-ups worldwide to partner with Dassault Systemes to work with their 3D experi ence platform
- One of 10 out of 700 who have been selected in the India-Sweden challenge

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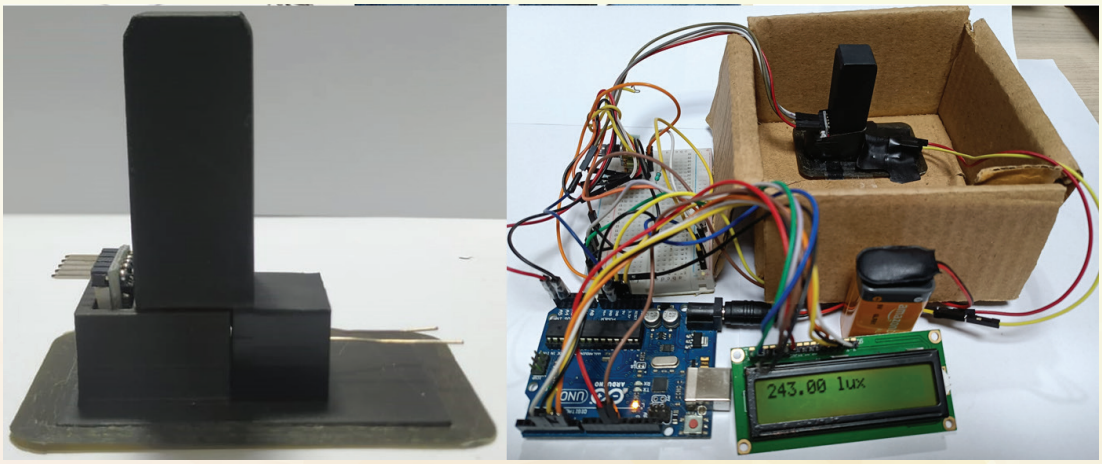
Swapnil Sinha

Swapnil has over ten years of experience in oncology, biopharmaceutical drug development and epidemiology. She earned her PhD from CDRI, Lucknow in 2009 in malaria epidemiology and population genetics. Dr. Sinha completed her postdoctoral fellowships at Institut de RecherchesCliniques de Montreal (IRCM), Canada and Colorado State University, USA where her research was focused on various aspects of gene regulation during cancer and cardiovascular diseases. Swapnil moved back to Guwahati in 2014 as a DST Women Scientist at NIPER-Guwahati from 2014 to 2017. During her time at NIPER, Dr. Sinha shifted her research interest to biopharmaceutical development. She worked on projects that were focused on generating Aptamers (DNA, peptide, Riboswitches and DNAzymes) for applications in cancer immunomodulation and Mtb pathogenesis. She nurtured the idea of using the Aptamers as diagnostic tools and conceptualized 'BioAptagen'. Swapnil founded the start-up "BioAptagen Laboratories" in September 2018. She secured the necessary early-stage funding, BIG (Biotechnology Ignition Grant) sponsored by BIRAC, Govt. of India in 2018.

Product/Technology

DNA Aptasensor based kit for early detection of Urinary Tract Infection, a DNA based Aptasensor kit that specifically and accurately identity four bacterial species viz. E. coli, E. faecalis and K. pneumoniae and S. aureus.



Stage of development:

Validation

Impact:

The kit is Point-of-Care and is connected to hand-held battery-operated device where a digital read-out can be obtained on smart phone in 15min which, will allow to circumvent the limitations of longer detection time of culture-based UTI diagnosis and might be life saving for many patients especially who are immunocompromised and under post-surgery recovery.

IP status

1 Patent Filed

Other Achievements:

- BIRAC-BIG grant
- BIRAC-TiE Women in Entrepreneurial Research Award 2019
- Investments received: 80 Lakhs INR

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WASTE TO WEALTH
Swachh Bharat Unnat Bharat

Waste to Wealth Innovative Technologies LLP

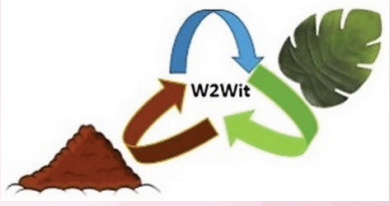
www.zaubacorp.com

Shaon Ray Chaudhuri

Shaon has developed products which are in demand from environmental perspective. These all inventions are not mere innovations of existing processes. Successfully, carried out three industrial trials in India for two of the technologies. She has tied up to Technology Transfer Office for commercialization.

Product/Technology

They work on environmental protection through pollution minimization (biofertilizer production, enzyme based fiber processing) and pollution abatement (wastewater treatment processes). They developed tailor-made microbial consortium for different types of wastewater treatment so that the treated water is reusable for non-potable applications and the fresh water is kept for potable purposes. Many of the processes have been tested at the industries and have received different recognitions. These patented technologies can ensure clean environment, food for masses and relief from pollution burden and will also generate revenue.



Stage of Development

Pre-commercialization stage

Impact :

Disruptive technologies which will cut down on the carbon foot print of the wastewater treatment plants with almost 90% reduction in CO_2 equivalent gas emission.

IP status:

Different Technologies transfer to IVIN, Several Patents Filed and Granted

Other Achievements:

- Won NASI-Reliance Industries Platinum Jubilee Award for application oriented innovations in Biological Sciences 2020
- Won the Visitor's award in Technology Category in December 2019.
- One of thirteen innovators representing India in the Global Grand Finals of Climate Launchpad 2019 at the Netherlands in November 2019.
- Winner of Regional finals of Climate Launch Pad 2019 (Odisha)
- 16th position in DST-Lockheed Martin India Innovation Growth Program 2014.
- Investments received from BIRAC funding through BIG and MSME funding.

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Carditek

Carditek Medical Devices Pvt. Ltd.

www.carditek.com

Sugandhi Gopal

Starting a business from scratch is one of the scariest things in the world. Sugandhi started about the things that could indeed go wrong. Never once the goal was abandoned, and persevered through sleepless nights and gruelling days. As an outcome, a beautiful wearable ECG device that is at cutting edge technology and is multifunctional even for high resolution and dyssynchrony ECG! The journey has been wonderful, meeting youngsters full of energy to seeing all the network of friends and patients and contacts for their support over the last 5 years.

Product/Technology

Sydantek - A Wearable compact wireless 12 lead ECG, multifunctional for continuous monitoring, High resolution ECGs for ischemia and dyssynchrony ECG

Stage of development:

Validation completed for clinical trials, now in Pilot studies

Impact:

Digital ECGS for everyone, everywhere, every time anywhere, anytime. This will revolutionise cardiac care immensely - from getting ECGs from remote rural areas to an experienced back office within minutes, to monitored care in the ambulances, chest pain triads in emergency room, stent outcomes and choice of pacemakers - so from basic care to the most cutting-edge technology managed in a small wearable ECG - the best of brains will be available in the most remotest of communities, and at a fraction of the cost,

IP status:

4 Patents Filed (3 have been published)

Other Achievements:

- National Bio Entrepreneurship Competition, NBEC 2020 Winner
- Investments raised - Rs. 1,50,00,000; BIG Grant; Grant from National Biopharama Mission (BIRAC) 2020; Ongoing Pfizer Innovation Grant through IIT Delhi and MSME Grant from IISc Bangalore

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Bioscan Research Pvt. Ltd.
www.bioscanresearch.com

Shilpa Malik

Shilpa is a technopreneur with a decade experience in hardware innovation. She served as Scientist in Defence R&D and worked on military sensor systems design and management. She is leading product development at Bioscan Research where she is handling R&D, industrial design, clinical validation and regulatory approvals. A former Scientist from Defence R&D Organisation of India, Shilpa has more than 11 years of experience in government and private sector where she worked on pilot display system with the radar team and also developed prediction software for food and beverage industry. She has done successful clinical validation on 542 subject human trial at 3 clinical sites. The usability study has completed. The ISO 13485 certification has been obtained and the company is already booking pre-orders.

Product/Technology

CEREBO - Instant Intracranial Bleed Detector is a point-of-care screening device for early detection of intracranial bleed in traumatic injury patients.

Stage of Development:

Commercialized - Pilot launch

Impact:

The products aim to reduce the mortality and disability associated with traumatic brain injury by detecting it at an early stage with CEREBO.

IP status:

Utility Patents: 5 & Design Patents: 3

Other Achievements:

- ASME Healthcare innovation winner,
- India Israel Innovation Challenge winner,
- Tie50 Winner,
- NextBigIdea Canada Winner
- BIRAC Ignite fellowship
- Investments received: BIRAC Grants, Incubation equity investment, Strategic investment from pre-orders

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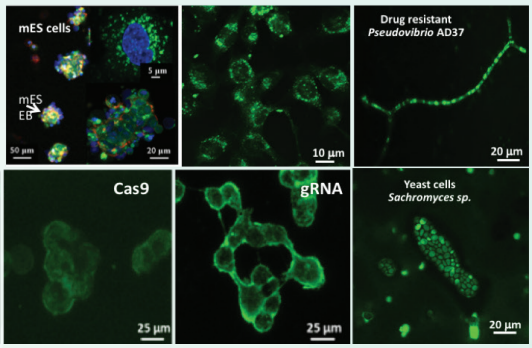
CyGenica Pvt. Ltd.
www.cygenica.com

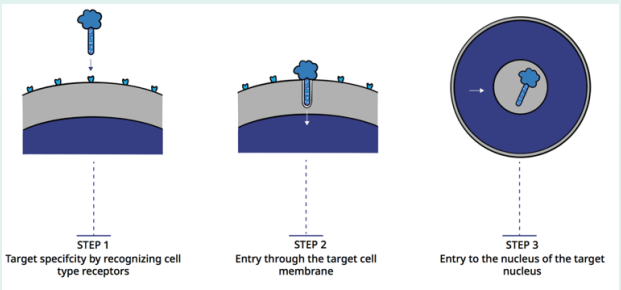
Nusrat J M Sanghamitra

Nusrat is a decorated academic in the field of chemistry and nanotechnology with over 17 years of experience researching nanomolecular machines. She's been a researcher at Indian Institute of Science and the Kyoto University, as well as a Postdoctoral Fellow at Oxford and Leiden University. She received the Foresight Fellowship in 2018, and the National Award of the President of India for Technology Startups that same year.

Product/Technology

She has developed a non-toxic, non-immunogenic proprietary engineered molecule as a platform technology (GEENIE) that works like a molecular nanorobot and deliver drugs without causing any harm to the cell. It can bore into the cell and deliver drugs, genes, nucleotides as well as CRISPR cas9 (the gene editing toolbox) into it without causing any harm to the cell, solving the most crucial issue of intracellular delivery and lowering dosage of payloads by even 90%. May act as a key enabler for revolutionizing the market potential of next generation personalized therapy by delivering the genes and or gene editing machineries into the target cells and organelles with no toxicity and adverse inflammatory response.





Stage of Development

Pre - clinical efficacy stage of development

Impact of product:

The most crucial issue of intracellular delivery for large molecules, especially for gene therapy, remains the cellular membrane. It would minimize the undesired 'off target' side effects and reduce the required dose. It will make cancer drugs safer and better' to make an impact in oncology and do her bit in the global fight against cancer.

IP status:

One PCT has entered national phase and the other one is Internationally published

Other achievements:

- 2nd Runners up, She Loves Tech Global startup award, Beijing 2019
- Country winner Grand Challenge, She Loves Tech, India
- Won technical competition in Molecular machines, Chaired by
- Prof. Fraser Stoddart, Nobel laureate, Foresights Institute, Sept 2019
- National Award for Technology Startup, from honorable President of India 2018
- Nominated as the most innovative businesswoman of the year 2018 by Pharma Leaders
- RICH-Hyderabad Winner of Cancer Innovation Challenge 2018
- Most Innovative Product Award, Enterprise Ireland, Ireland 2018
- BIRAC TiE- Women in Entrepreneurial Research (WInER) Award
- STAR Innovator by BIRAC, Govt of India 2017
- i3 Gold award for top innovator, by DST-AICTE-CII 2017
- Excellent Research Award Kyoto University, 2012 and 2013
- Featured by Nature Biotechnology (May 2018) as emerging biotech startup of India, Bio Pharma India, Economic Times, Times of India, Indian Express, RebelBio, Enterprise Ireland, Cork Chamber of Commerce as face of Cork business

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inochi care
innovating healthcare

Inochi Care Pvt. Ltd.
www.inochihealthcare.com

Shivani Gupta

Shivani is the Co-Founder, Director at Inochi Care. Shivani earned her doctorate degree in Biotechnology, during which time she completed the Biodesign Fellowship with an aim to solve unmet clinical needs and develop innovative technologies. She co-founded Inochi Care and is currently working on advanced wound healing technology. Inochi Care is a Spin off from the School of International Biodesign, All India Institute of Medical Bioscience, New Delhi. The company mission is "Healing the non-healing wounds". She is also Ifellow @ School of International Biodesign..

Product/Technology

InoHeal is an advance wound care system for improved outcomes of wound healing. The InoHeal wound healing system is an innovative wound-healing technology that facilitates accelerated healing of medically complex wounds like diabetic foot ulcers, pressure sores, surgical wounds and infectious wounds. It consists of an electronic medical device along with a specially designed wound dressing to deliver multi fold therapeutic effects at the wound site. The InoHeal System overcomes the challenges of impaired wound healing by:

- Removing wound exudate
- Reducing inflammation and oedema
- Enhancing cell proliferation and tissue perfusion
- Increasing the rate of granulation tissue formation
- Stimulating the blood circulation
- Increase the ROS activity in the oxidative killing of microbes

Stage of Development :

Validation

Impact of product:

Quicker healing/closing of wounds, reduced wound infections, cut down hospital stay, lesser no of dressings required, saving nursing time, no additional infrastructure cost.

IP status:

03 (1 granted, 2 filed)

Other Achievements:

- ASME India 2022 winners
- Next Big Idea 2021
- TiE Global women pitch competition winner
- Quebec market access programme
- Investments received: app 4 crore INR (app 600 000 USD)
- BIRAC TiE- Women in Entrepreneurial Research (WInER) Award

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OmiX Research and Diagnostics Laboratories Pvt. Ltd.
www.omixdx.com

Sudeshna Adak

Sudeshna is the CEO and co-founder of Omix Labs. Over the past years, Sudeshna has steered OmiX from self-funded to being grant funded to getting investment into OmiX and now to getting the first customers. Prior to OmiX, Sudeshna spent 20 years of her career in the field of biotechnology, healthcare and diagnostics – spanning stints in academia (Harvard School of Public Health) and senior management roles at R&D in multinational corporations (IBM, GE Healthcare). Sudeshna holds a PhD in Statistics from Stanford University and has worked with multidisciplinary teams devoted to healthcare during her career. Her vision for OmiX is to develop technologies that make healthcare different for the billions who most need it and yet cannot afford it.

Product/Technology

The OmiX iAMP Platform is a low cost, indigenously developed, end to end automated solution for the detection of pathogens based on loop mediated isothermal amplification (LAMP). The iAMP system includes an automated extraction system and extraction kits that can be used for a variety of samples such as blood, urine, bronchoalveolar lavage, sputum, and swabs. It carries out extraction simultaneously for 1-4 samples, allowing it to be used in smaller labs and hospitals, doctor's clinics, rural areas anti-proliferative,anti-metastatic, immunomodulatory, anti-microbial, anti-bacterial, anti-viral, anti-diabetic, anti-HIV, anti- malarial, anti-fatigue, neuroprotective, liverprotective etc. It is also superfood for sportsmen.

Stage of Development

Validation

Impact

OmiX's iAMP platform has the ability to change this with its low cost, automated system, and lyophilized kits that makes molecular testing very easy.

IP status (Patents filed/granted):

3 patents filed

Other achivements:

- BIRAC TiE- Women in Entrepreneurial Research (WInER) Award
- BIRAC - NESTS Boost Award
- Finalist of India Startup Award
- Investment raised of INR 2.5 Lc.

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99

MicroRadical 360 Pvt. Ltd.

Shivanshi Vashist

An exprienced senior scientific officer with a demonstrated history of working in Biotech Industry. Shivanshi has 2 Product launches as innovator "Hyper thermal incubator shaker with air and vacuum control" at Panjab University, Chandigarh in September, 2017 "Novice seri: Novel scale-up bioreactors for multiple process optimizations" at Panjab University, Chandigarh in July, 2019.

Product/Technology

Bioprocess technology and engineering

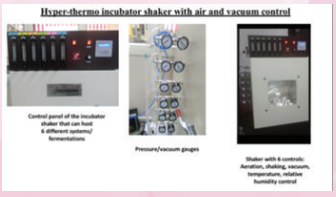
The Novice

1. Novice zyme: (nitrilase enzyme panel) Active against multiple nitrile substrates with a focus on multiple biocatalysis. Butyronitrile, 4-Chlorobenzonitrile, Adiponitrile, 3-Chlorobenzonitrile. 3 enzymes panel consisting:

- Novice Zyme 001: Rhodococcus sp.
- Novice Zyme 002: Bacillus sp.
- Novice Zyme 003: Microbacterium sp.

2. Novice seri (Series of 6 bioreactors) - Novel scale-up bioreactors for multiple process optimizations. The apparatus offers use of 6 bioreactors using the same source of water and air, each process running independent of each other. This save time cost, water and or air wastage and an advanced system of biological engineering that take the production setup to a new level. The apparatus is operated with a single control panel, single air input, single water chilling system allowing the user to engineer multiple bioprocesses on a single run thereby saving time, energy, resources.

3. Novice vide (Hyper thermal incubator shaker) - An incubator shaker that provides a stable shaking bed to allow accurate shaking motion and easy cleaning of the shaking platform with air and vacuum control modules. Additionally, it provides uniform heat thereof capable to grow at high temperatures and aerobic conditions at the same time. The complications of growth/enrichment of media charring/reduction due to evaporation are also sorted



Stage of Development

Product in Pipelines

1. NOVICE SERI: 6 SERIES Bioreactors: Launched, ready to demonstrate/licence
2. NOVICE VIDE: Hyper-thermal incubator shaker: Launched, ready to demonstrate/licence
3. NOVICE ODE: Alternate method for enzyme detection, quantification: to be launched, testing stage
4. NOVICE ZYME: NITRILASE enzyme INDEGENIOUS PANEL
   - RSV4: to be launched
   - RSV62: in-house manufacturing
   - RSV9: to be launched
   - RSV49: in-house manufacturing
   - High throughput library generated: 70 nitrilase producing bacterial isolates

Impact:

1. Library of 67 screened isolates makes the innovation unique
2. High enzyme activity (above 10,000 enzyme units) of selected isolates against various substrates
3. Their isolates hit 10-16 different nitriles on induction with a single nitrile.

- Novice seri: An apparatus that could operate multiple processes in a single run, thereby reducing the time and cost of the process.
- Novice vide: Water bath incubators that provide high temperature incubation limit the applications by reduced volumes/capacity.
- Novice zyme: This innovation has two aspects. One is the production of carboxylic acid/s (-COOH) constituting a large cadre of high value commercials, the "red area" and second is the elimination of hazardous nitriles (-CN) from the environment contributing to bioremediation, the "green area".

IP status:

7 patents & 1 book chapter

Other Achievements:

- National representation at INDIA Pavillion BIO Boston 2018-BIO International Convention 2018
- Selected for Canada India Acceleration program (CIAP) as women entrepreneur (Rank 5) for orientation at New Delhi by AICTE, New Delhi
- National representation at INDIA Pavillion BIO Philadelphia 2019-BIO International Convention 2019
- Selection in Longitude prize powered by NESTA, UK's innovation foundation, 2014
- Won the First prize in the Poster Presentation at the 12th Chandigarh Science Congress held from 12th – 14th February, 2018 at Panjab University, Chandigarh.
- Best oral presentation at the 12th Chandigarh Science Congress held from 12th – 14th February, 2018 at Panjab University, Chandigarh.
- First prize, Pitch Fest, BioNEST, Panjab University, Chandigarh
- BIG award from DBT- BIRAC
- Jury award under AICTE Start up policy by Vijnan Bharti (VIBHA)
- Best Innovation award at LJ Innovation Village
- Seed fund by Fresenius Kabi Oncology Limited, HP
- IP award for patent filing by PFIZER through FITT, IIT-New Delhi, IP Scheme

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BioNEST-Panjab University, Chandigarh

ADVENiO

Advenio TecnoSys Pvt. Ltd.
www.adven-i.com

Mausumi Acharyya

Mausumi is the head of Advenio Tecnosys' Research & Development department and a dedicated social tech entrepreneur working to create an innovative, inexpensive, and equitable healthcare system. She holds a PhD in Computer Science from Indian Statistical Institute in Kolkata, as well as a post-doctoral fellowship from the University of Pennsylvania, USA with an extensive knowledge in the field of AI and machine learning, image processing, and medical diagnostics. Mausumi has over 18 years of experience in the IT and health-tech industries, including leadership roles in med-tech behemoths Siemens Healthcare and GE, as well as a Senior Scientist position at DRDO. Her main ideas revolved around developing point-of-care healthcare systems that were both cost-effective and simple to use. Advenio is the platform that allows her to fulfil her life's mission and is also the tool that allows her to realise her life's goal. Professionally and personally, establishing Advenio has been a steep learning curve for her.

Product/Technology

'Adven-i' is an AI powered; cloud based teleophthalmology platform that uses images captured non-invasively from any third-party fundus camera (vendor neutral) to detect retinal abnormalities including diabetic retinopathy within a few seconds. Adven-i works in SaaS mode and can be accessed through a web browser, any laptop or PC, tablets, and smartphones, at any given time from any location. It works on both - pupil dilate (mydriatic) and un-dilated (non-mydriatic) fundus images. It can also be used as a screening tool for clinical decision support systems, enabling patient database creation and maintenance much easier, faster, accessible, and economical – available in both Patient Mode and Bulk-Upload Mode

Stage of Development

Started commercialization in India in May 2022.

Impact:

77 million people in India are at risk of loss of vision either partially or completely. Of the various retinal disorders, glaucoma, cataract, age-related macular degeneration (AMD), and diabetic retinopathy (DR) and diabetic macular edema (DME) are among the leading retinal diseases. The product will help in reduction of preventable blindness through early identification and develops comprehensive eye care facilities that could scale in every district. It is an incremental step to address the need for a diagnostics basket that is needed for comprehensive primary care, including care for chronic illnesses. Technology and competence for non-communicable disease (NCD) care are concentrated in hospitals, making it harder to access for rural dwellers. Being an out-of-pocket market, price is another constraining factor. The lack of patient data, poor protocol administration and low-quality compliance lead to treatment of symptoms instead of root-cause prevention. Adven-i is addressing these gaps in the health-care ecosystem.

IP status

Multiple IPs are in the pipeline to be filed in India and PCT

Other Achievements:

- Top – 50 AI Startup in India, Mumbai AI Summit 2020
- Fellow, Unreasonable (growth accelerator), USA, 2018
- Winner, Women in AI Leadership, Rising 2019
- Winner, Tech Mahindra AI Impact Challenge, CII AI Conclave, 2019
- Top – 50 Healthtech Startup in Asia, Galen Growth Asia Health Tech Summit 2019
- Winner, "Most innovative AI Healthcare Company in India" Amazon AI Conclave 2018
- Winner India, Start Tel Aviv 2016
- Winner, Power of Ideas, CIIE, IIMA, 2016 - Grant & Investment
- Winner, NASSCOM Digital India, 2016
- Winner, KStart Girl Challenge, 2016
- Winner, "Most Innovative Idea", WISH Foundation, 2016
- Winner, "Empower, Accelerating Women Entrepreneurship", Zone Startups, 2016
- Featured in Forbes 24th September 2021 issue
- The Govt. of India DIPP's AI Task Force mentions Advenio.
- Grant-in-aid from BIRAC
- GoI, BMGF, USA and CIIE, IIM Ahmedabad (Equity and Grant)

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QAWaCh Bio Pvt. Ltd.

Rashmi Shukla

A social enterepreneur and founder of QAWaCh Bio Pvt. Ltd. an alumunus of IIT Bombay. She Co - founded her enterepreneurial venture in 2018. QAWaCh Bio is a team of passionate innovators with a vision of making personalized, affordable and easy to use dignostic tools available to masses. Recieved ICMR approved Rapid COVID antigen test kit for QAWaCh Bio in the year 2021. Currently Incubated at business incubator, Society for Innovation and Entrepreneurship at IIT Bombay since 2019.

Product/Technology:

InstaNGAL test kit (Novel Quantitative, Early point-of-care, Affordable screening for Renal injury) - Kidney injury is routinely diagnosed by measurement of serum creatinine [SCr] levels and estimated glomerular filtration rate [eGFR] having several limitations. On the contrary, Neutrophil Gelatinase-Associated Lipocalin (NGAL)is up-regulated within 2 hrs in early stages of renal insult and is specific for renal injury. QAWaCh Bio has developed an affordable, sensitive and non-invasive point-of-care device that can detect an increase in the levels of NGAL in patients susceptible to renal injury, called InstaNGAL test kit. It is used as a novel 'time-based analyte estimation algorithm' that quantifies NGAL levels in human urine using a combination of a test strip and smartphone application.

Stage of Development :

Validation - First phase of Clinical study completed, applied for manufacturing license

Impact :

The socio-economic impact of renal failure and its aftermaths is huge in India. Kidney failure is incurable and the treatment becomes a life-long expense. A rise in the cases of renal failure is attributed to the limitations of current diagnostic tools for AKI. Hence, it is necessary to introduce an affordable and sensitive point-of-care test that can diagnose a renal injury at its early stages and thus, prevent renal failure and following complications.

IP status:

Complete patent application filed in January 2019, Grant awaited

Other Achievements:

- Awarded from WEE foundation & IIT Delhi in a pitching competition by SINE IIT Bombay.
- BIG & BIPP Grant from BIPP
- Special COVID consortium funding from BIRAC
- SEED funding from SINE IITB
- Recipient of Nidhi Prayas grant from DST, GoI in 2020.

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Molecular Solutions Care Health LLP
www.molecularsolutionscarehealth.com

Varsha Shridhar

Varsha started molecular solutions together with other partners. She is the director and co-founder of the company and innovater of diagnostic tests and devices . Along with PCMH Restore Pvt Ltd, created an ecosystem of companies and people to address multiple issues in health care: digital tech, government stakeholder management, home care, medical devices and innovation and so on. Scaled from a small 3-person, 20 Lakhs turnover company before Covid, to a 20-person, 2 crore turnover company in 2 years. Performed 1.5 million Covid RTPCR tests. First in Karnataka to work with the Bengaluru municipal government to offer free genomic sequencing for Covid-19. Part of the founding group to set up Asia's first hybrid and largest publicly available wastewater surveillance dashboard for Covid-19 and other diseases

Product/Technology:

The company is committed to solving problems in public and planetary health. Specifically, it has expertise in public health diagnostics, where it actively develops or participates in "partnerships for public purpose" (PPPs) with various agencies and institutes, to improve access to diagnostic testing and linkage to clinical care. Towards this, MSCH develops both novel tests and devices and curates/aggregates/integrates available tests and devices from other groups to enable smooth linkage of patients to comprehensive clinical care, reduce patient loss to follow up and improve health outcomes. One of the products that MSCH initially conceptualized and piloted was a dried blood spot to improve blood transport logistics. This has since been developed by a collaborating company called Iota Technologies to a stage of clinical validation.

Stage of Development:

Validation in partnership with Iota Technologies

Impact :

The dried blood spot matrix has the potential to change blood transport logistics and enable access to diagnostics. It will facilitate access at point of care to patients from rural and smaller towns by allowing easy sample collection and transportation to a laboratory from the clinic. Further, it will facilitate access to niche or higher end tests such as genotyping for certain cancer mutations or viral loads for infections such as HBV or rare genetic disorders from across the world.

IP status:

3 patents filed for HIV drug resistance genotyping

Other Achievements:

- Selected for Goldman Sachs-IIM Bangalore 10,000 Women program for mentoring women entrepreneurs whose ventures are in the scale phase.
- Featured on the 2022-23 calendar of Indian Women, Transgender and Non-Binary Women in Science calendar by TheLifeofScience.com
- Biotechnology Ignition Grant (BIG) from BIRAC,
- Imprint grant from DST

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Biomoneta

Biomoneta Research Pvt. Ltd.
www.biomoneta.com

Janani Venkatraman

She was research scholor from the Cardiovascular, Genetics lab, DBI, IIT Madras. She is working as a founder, Director & CEO of Biomoneta Research Pvt. Ltd. Biomoneta have sold over 150 devices in the 9 months since start of commercial operations. Demonstrated effectiveness of devices in the clinics and other real-world conditions. Supported hospitals ICUs, IVF clinics, R&D facilities and businesses returning to work post pandemic with their devices. Secured CE marking for devices. Attracted investment from an international venture firm and Indian healthcare angels

Product/Technology

Biomoneta create solutions to prevent the spread of airborne infections in the clinic and community, and microbial contamination in biotech environments. Their clinically validated, energy efficient air sterilization devices, based on their proprietary ZeBox technology, trap and destroy viruses, bacteria, fungi and spores and are used in stationary and mobile indoor environments to protect human health and business.

Stage of Development

Commercialized

Impact:

ZeBox devices have the potential to deliver controlled, germ-free environments to underserved areas. Such environments reduce the risk of life-threatening infections, including those caused by resistant organisms, and support cleanroom-type applications in absence of expensive air handling infrastructure.

IP status:

Patents filed in India, US, EU

Other Achievements:

- Startup of the year', 2022 from the CII Southern Chapter
- Women entrepreneur of the year, 2021, by ABLE
- Chinnakrishan Innovation Award, 2021 by the CavinKare group
- Pfizer Entrepreneurship Award in the National Bio-entrepreneurship Competition, 2019
- India Top 30 startups, FICCI/PwC LevelNxt program
- India Top 50 technology startups, FICCI/LockheedMartin/Tata Trust program IIGP2.0.
- USD 1 million secured from institutional and angel investors
- Secured grant funding via the BIG, SBIRI, COVID 19 consortium and Ideas2PoC schemes

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Dhanvantri Biomedical

Dhanvantri Biomedical Pvt. Ltd.
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Sruthi Babu

A biomedical engineer who was able to create a social impact, making the life easier, and bringing smile back of immobile population with the product Sahathaya. Launched product Sahayatha which is now available in top hospitals and also in e-commerce platform(GEM) government e- market place for digital procurement. Received letter to showcase and demonstrate product Sahayatha in Indian military. Collaborated with top 10 hospitals for sales of Sahayatha.

Product/Technology

SAHAYATHA a smart defecation cleansing assistive device for immobile population to assist the patients in defecation cleansing with inbuilt defecation and cleansing assembly. It helps the patients to maintain their dignity with hygiene and reduces the patient transfer.

Stage of development:

Launched the product & started commercialization

Impact of product/envisaged impact of product/technology:

1. Improving the quality of mobility impaired individuals and patients in hospital.
2. Increases the independence and social integration. Upholding the sense of self-dignity.
3. Upholding the sense of self-dignity.
4. It prevents the inpatients falls by 90%.
5. Save the lives of immobile population decrease the death rate which occurs during the transfer of patients to toilets and also increases the quality of life

IP status

Different patents filed and granted including one Trademark

Other Achievements:

- Sushrutha Innovation Award by Indian Medical device and plastic Industry.
- Chinnikrishnan Innovation Award 2021 for best idea by CavinKare
- Suyasakthi Award 2021 by Brand Avathar and Sakthi Masala
- Recognized by innovation week IWA and OFEED under International Federation of Inventor's association (IFA), Oxford Business group, Patent Magazine – PQAI American Initiative, Sharjah Research Technology and Innovation Park, UAE – Sparkinov India
- BIRAC SIIP and BIG grant
- DST Nidhi for Covid grant
- EDII-TN
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Sephirah Innovations Pvt. Ltd.
www.sephirahinnovations.com

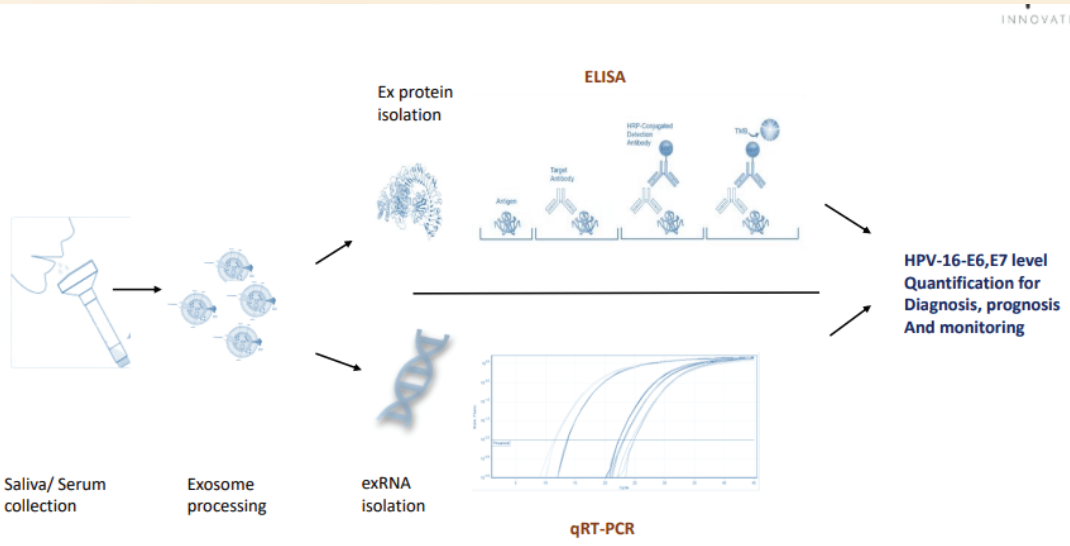
Devjani Ghosh Shrestha

An experienced consultant with a demonstrated history of working in government and private health care industry and medical education. The highlight of the entrepreneurial journey has been receiving the prestigious BIRAC-BIG Grant for establishing the Proof of Concept and early validation of theirus diagnostic solution. KIIT-Bhubaneshwar, BIG Partner has provided immense and continuous support and encouragement in this journey.

Product/Technology

Developed the first non-invasive Human Papilloma Virus (HPV) Diagnostic panel to detect HPV positive status in oral cancers. The technology is based on exosome profiling at mRNA and protein levels and has the unique advantage of being a minimally invasive diagnostic for HPV markers for screening, prognosis, diagnosis, and assessment of disease progression and follow-up of HPV positive oral cancers. This molecular stratification of patients will help stratify oral cancer patients towards optimal, cost-effective treatment based on their HPV positive status.

Diagnostic Solution: Schematic Diagram



Stage of development:

Validation

Impact :

Head and neck squamous cell carcinoma is a huge and significant global problem. Treatment selection in these patients is becoming a critical issue, since current strategies may represent an over-treatment. Identify ing the HPV-positive subsets of oral cancers will help to stratify them towards less invasive and aggressive treatment protocols like robotic surgery and de-intensified chemoradiation protocols. This first ever non-inva sive HPV diagnostic panel, based on serum and saliva, will be an easy, cost-effective, accurate alternative to routine biopsy; which will act as a screening, diagnostic, and follow up tool; and transform the oral cancer management.

IP status:

Indian and PCT Filing completed and applied for other patents

Other Achievements:

- Project was selected as one of 'Hello Tomorrow Deep Tech Pioneers' in the Hello Tomorrow Global Challenge in 2021 among 4,000+ applications across 115 countries.
- Project was selected for BIRAC-IGNITE 2020 at the Judge Business School Cambridge, in 2020.
- Project also reached the pre-final stage of the National Bio-entrepreneurship Competition in 2020.
- Received Grant from AHERF under the Faculty Development Fund.
- Received the prestigious BIRAC BIG GRANT with KIIT-TBI Bhubaneshwar

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EMPATHY DESIGN LABS

Empathy Design Labs Pvt. Ltd.
www.empathydesignlabs.com

Shivi Kapil

Shivi Kapil, electronics engineer and a design postgraduate from the National Institute of Design, travelled across India during her BIRAC SIIP fellowship under Government of India in 2015. During her field research in faraway tribal and rural areas as well as urban clinics and hospitals (in Karnataka, Rajasthan, Kerala, Tamil Nadu, and Odisha), she observed that the problem of stillbirth was prevalent.

Empathy lab was founded design in January 2017 and then raised its first grant in November 2017.

Product/Technology

Empathy Design Labs is developing a wearable and non-invasive screening patch - KRIYA™ for rapid pregnancy monitoring by expecting parents and clinical Obstetricians. Early alerts and timely actions can save the lives of millions of babies who are stillborn due to delays in reaching care providers. As a non-invasive IOT device it alerts parents 24-hours prior to a pregnancy turning into a stillbirth. With such a notification there is an opportunity to intervene and save a pregnancy.

Stage of development:

Validation

Impact :

The product is aiming to cover 5 Indian states in the beginning by reaching 15,000-20,000 mothers within the first 3-5 years and to be the standard of care for Antenatal foetal monitoring(screening) having protected 20 million pregnant mothers and babies from stillbirths cumulatively, 7 million per year thereafter world.

IP status:

2 patents filed in India; 1 US patent application filed

Other Achievements:

- Dhriiti – We can, Cherie Blair Foundation & US Embassy, 2017
- Youth Champion -The Public Health Institute and David and Lucile Packard Foundation – California ,2017
- FICCI FLO- Outstanding woman in healthcare and medicine, 2017
- IDEATOR /EUREKA CHAMP, 2017
- BIRAC BIG Grant, 2017
- NASSCOM SOCIAL INNOVATION FORUM – HEALTHCARE,2018
- BIRAC- TiE Woman in Entrepreneurial Research (WInER) 2018
- DELEGATE- CANADA INDIA ACCELERATOR,2018
- IOT NEXT Award Top 2 Country finalist, 2019
- UNNATI – Government of Karnataka 2019
- AISME HARDWARE INDIA FINALIST ,2019
- KARNATAKA ELEVATE FINALIST 2019, 2019
- SHE LOVES TECH - INDIA FINALIST, 2019
- WESTERWELLE YOUNG FUDNER PROGRAM, GERMANY 2019-2020
- TiE QGlue Design - Led Entrepreneurship - FINALIST, 2020
- August 2020, PRIF IIIT-H, 2020
- UN WOMEN SHREE SHAKTI CHALLENGE, Government of India - MOST PROMISING SOLUTION -2020
- Meity's FlexE Innovation Challenge- Design Flexible Electronics ,2021
- United Nations STI Forums Technology, 2021
- Google - Digital women Awards
- TSS women social entrepreneur of the year - 2021, TiE Sustainability summit
- Shri shakti winner Felicitation - by MyGOV, Aaazadi ka amrit mahotsav, Jan 2022

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Neelagil Technologies Pvt. Ltd.
www.neelagil.com

Neelam Dwivedi

Neelam is a co-founder of NeelAgil Technologies Private Ltd., which is based in Hyderabad, India, was part of the team that developed oral insulin formulation during Ph. D. work at IIT Bombay. She is a passionate scientist and have made some solutions for betterment of mankind.

Product/Technology

Oral Insulin Technology for Insulin dependent diabetes patients. The team at Neelagil have developed a platform technology to encapsulate protein therapeutics in a coating agent to be taken orally. This will reduce the pain from life of diabetics. They worked on the challenge and developed a robust technology to protect the insulin from gastric pH and enzyme. The invention is going to help millions of diabetes patients around the world by providing painless and cost-effective therapy.

Stage of Development

pre-clinical stage

Impact of product

It has potential to create a difference in the life of 150 million diabetes patients and other injectable protein therapeutic market drugs like GLP1, Humira for arthritis.

IP status

US patent Granted for product and one for process is under review

Other Achievements:

- Frontrunner award in Pharmaceuticals by ITC, GO GLOBAL AWARDS 2021
- Coached students under Business Blasters Program for entrepreneurship, Jan-Feb 2022.
- Member of ITC, 2022: Network establishment
- Winner of FalconX accelerator pitch competition- June 2021
- Finalist in SXSW pitch competition, Austin, USA 2020
- Finalist in Rockstart Health accelerator program 2019
- Delhi Management Association Award for Aspiring Women Entrepreneur 2019.
- Finalist in USIBC pitch competition 2018.
- Winner of Indo-German Pitch competition, 7th July 2018 in Mumbai.
- AIT- Swissnex Boot Camp in India (Nov 2017) and Switzerland (April 2018)
- BIRAC- TiE Woman in Entrepreneurial Research (WInER) Award
- NIDHI Prayas Grant, Venture Center 2019
- WEE- SINE, IIT Bombay 2019
- Investments received: 20 lakh INR

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Robo Bionics™
#NeverFeelBroken

Bionic Hope Pvt.Ltd.
www.robobionics.in

Kumari Priyanka

Kumari Priyanka is the Co-Founder and COO at Robo Bionics. Kumari Priyanka is a co-inventor of India's First Semi Bionic Hand with the Sense of Touch. She has established successful CSR Partnerships. Priyanka has also won the PRIF Social Impact Fellow 2020 and National Start-up Award 2021 Winner. She also bagged the BIRA TiE Women in Entrepreneurial Research Awardee (WInER) in 2018.

Product/Technology

Grippy™ - India's Own NABL Lab Safety Tested and Certified, 3D printed Prosthetic hand with a sense of touch and multi-grip control. Designed, engineered, and proudly made in India, Grippy is a lightweight and affordable, battery-powered prosthesis now available in the Indian market for people with below elbow amputation age 15 years and above.

The Sense of Touch Technology also Aids in helping the patient / User of the Prosthetic hand identify different types of objects and when the hand is open or closed. This helps the patient / User accept the prosthetic hand.

Stage of Development

Validation

Impact:

OmiX's iAMP platform has the ability to change this with its low cost, automated system, and lyophilized kits that makes molecular testing very easy.

IP status:

5 patents files, 5 Trademarks filed

Other Achievements:

- 2nd in Misfits Initiative in 2020
- 3rd Tie Women Pitchfest in 2022
- Top 15 in Startup to Scale-up Organized by TheGain and Ministry of Information and Technology in 2020
- 2nd in Assistech Foundation Awards 2021
- 1st Emerging Social Enterprise TSS 2021
- Top 5 Social Startups at Adani GreenTalks 2021
- Winner of National Startup Award 2021 in the Medical Devices Category
- Top 3 in NXP Tech Startup Challenge 2021
- Investments received - National Start-up Award 2021, CSR Grants through SINE IITB, BIRAC – SBIRI, IIPME, TiE WInER Grant, SINE SEED FUND, IC IITP SEED GRANT

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ADIUVO DIAGNOSTICS

Adiuvo Diagnostics Pvt. Ltd.

www.adiuvodiagnostics.com

Geethanjali Radhakrishnan

She is the founder, CEO & MD at Adiuvo Diagnostics. As a company, they have developed a techno social enterprise aimed at developing platform technologies in Opto-Electronics to effectively in early diseas detcation, specifically customized for low-resource settings.

Product/Technology

Illuminate® - First ever imaging device that is rapid, label free, multispectral fluorescence device that addresses the global acute, chronic and traumatic wound market. The device can detect and classify gram type of bacteria along with few fungi non-invasively in less than 2 minutes on wounds, when compared to gold standard culture tests which takes more than 3-7 days for a definitive result and are cumbersome and error prone. The device aims at better debridement, accurate cleaning and first line treatment accuracy and strive towards combatting antimicrobial resistance.

Stage of Development

Commercialized

Impact:

Globally acute, chronic and traumatic wounds effect more than 500 million people. Unfortunately, 70% of the wounds delay in healing due to infections and vascular issues. Illuminate® is a rapid wound infection assessment tool, that has potential impact hypotheses to bring down the rate of amputation by early screening and treatment of these infections through guided cleaning and accurate debridement, reduce hospitalisation costs for patients by regular monitoring of the wounds, 100x reduction in time through rapid gram type identification of bacteria when compared to standard tests, improve on better patient engagement and can bring antibiotic stewardship by reducing unwanted prescription if the wound has no infection.

IP status:

1 Granted Indian patent and pending in other countries.

Achievements

- Social Impact investors – Menterra Venture Funds and Lesing Artha Limited, Grants received from BIRAC, DBT
- Qualcomm Design in India Challenge Winner 2020.
- Part of Medtech APAC Accelerator program - 2021.
- Ccamp IQVIA and Anthem Bioscience Winner – 2021.
- Featured in Forbes W Power magazine 2019.
- Part of Google Launchpad accelerator Program. ASME -ISHOW Award Winner 2016.
- BIRAC nominated IGNITE 2016 fellow, Judge Business School Entrepreneurship and Business Learning

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Green Pyramid Biotech Pvt. Ltd.
greenpyramidbiotech.com

Asmita Prabhune

Asmita is co-founder of Greenpyramid Pvt. Ltd. Company and is former scientist at National Chemical Laboratory, Pune. The company aims to develop a line of products catering to problems in the field of Agriculture, Food, Pharmaceuticals, Nutraceuticals, Cosmetics, Theranostics and General Well-Being.

Product/Technology

"Sophab" is organic, non-alcoholic, liquid washing solution for removing chemicals, pesticides, pathogens and other foreign materials from surface of fruits and vegetables, resulting in extending their shelf-life and rendering it completely safe for consumption. This formulation is patented which is developed from natural, biodegradable food-grade materials with regulatory approvals. Concept of washing /sanitizing fruits and vegetables was introduced first time in India through this product.

Stage of Development

The Product is already commercialized and available in the market & e-commerce platform under the name "SOPHAB Veg and fruit wash".

Impact:

Vegetable and Fruit markets add another level of pollutants, dust, and pathogens to the produce. Excessive Handling, Pollution in the environment, degrades the quality of food significantly. Green pyramid provides pesticide-free Agri- produce with increased shelf life. Diseases associated with heavy pesticides can be minimized using these products. Minimization of Post -harvest loss, Beneficial for farmers and exporters, and positive impact on the economy are other long-term impact of the product.

IP status

Patent granted.

Other Achievements:

- AIT Swissnex SINE Award
- Received Seed fund from Technology Development board and Venture Centre, Pune followed by CSR Bajaj grant.
- Startup India, DIPP recognized startup
- Recognized by DBT, GOI for the Patented technology.

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Weinnovate Biosolutions Pvt. Ltd

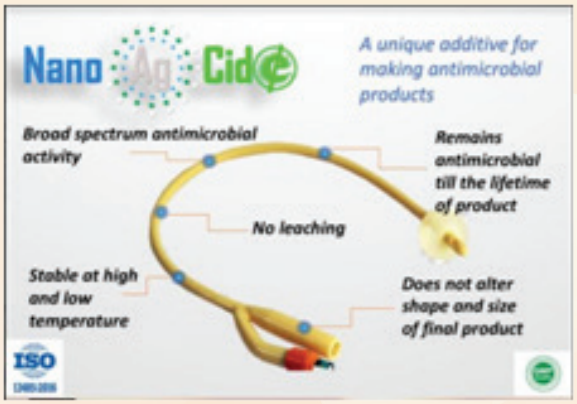
www.wibpl.com/www.silvoguard.com

Anupama S. Engineer

Anupama is Co-Founder & COO at WeinnovateBiosolutions. Their company is an ISO 13485:2016 certified start-up focused on infection prevention and control, infection diagnostics, and healthcare solutions. Anupama represented her company at BIRAC's National Bio Entrepreneurship Competition 2019 and was one of the top 10 finalists. Weinnovate has developed SilvoGuard® which is a unique line of antimicrobial medical devices which are of premium quality to prevent infection and provide comfort to patients

Product/technology:

SilvoGuard antimicrobial Foley catheters is a urinary catheter designed to reduce the incidences of Catheter-associated UTIs in patients. The Catheter is made entirely antimicrobial using a patented NanoAgCide technology, comprising of active Colloidal Silver Nanoparticles. SilvoGuard catheters are cutting down the hospital bills by more than Rs. 10,000/- per day, reducing more than 40,000 dosages of antibiotics thereby addressing the issue of AMR and also improving the foot-fall of hospitals thereby increasing hospital revenue.



Stage of development:

Commercialized

Impact of product:

The product is going to positively impact across the healthcare chain. It is going to reduce the hospital bills for patients, improve patient comfort, reduce the dosages of empirical antibiotics, improve hospital footfall and also save hours of nursing workhours. SilvoGuard is an excellent import substitute in the category of medical devices which are not available in India.

IP status:

Indian patent granted

Other Achievements:

- Won several awards including the National Bioentrepreneur competition, DBT-BioCare grant and best poster award.
- Raisede investments of INR 3.7Cr

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Bharat Agri Pvt Ltd
www.bharatagri.com

Sai Gole

Sai Gole and Siddharth Dialani launched Lean Agri (later renamed BharatAgri) in Pune in 2017 to provide a "systematic solution and consultancy calendar" to the farmers. Based on the data collected from them, BharatAgri's algorithm offers critical inputs like what the farmers should grow, how they should grow it, when to water, when to provide fertiliser, thereby helping them increase production.

Product/Technology

BharatAgri as an Agri-tech startup is striving to increase the income of farmers by helping them produce more and reduce input costs through our smart-farming solutions. It also offers end-to-end advisory services to the farmer through a personalized crop calendar on our mobile app. Other offerings of Bharat Agri include satellite monitoring of the farm, chat support, phone and video call support, nearby mandi prices and direct delivery of farming related e-comm products.

Stage of development

Commercialized

Impact of product

Farmers are the main beneficiary of the Bharatagri services. The vision is to help the 70% of Indians who are still dependent on agriculture as their main source of income. In general, a farmer uses old traditional techniques for farming and ends up producing less by using improper amount of fertilizers and pesticides on their crop. This in turn increases their costs and have a long-lasting bad impact on soil and groundwater. Currently they have more than 1 lakh farmers associated with Bharat Agri digitally through our app and use its services for their farming. On an average BharatAgri helps farmers increase their income by 30%

In termsof environmentalimpact,BharatAgrihas helpedthefarmersreducetheir carbonfootprintby 30 thousandtonnesof CO_2 inpast1 yearandhas saved4.8 thousandtonnesof chemicalfertilizersand175 thousandlitersof pesticidesfrom goingintothesoilandthenleachingintotheground water.

Other Achievements:

- Received investments of21 MillionUSD
- Won the UberPITCH competition in March 2017
- Forbes 30 Under 30 (2020),
- GoogleAccelerator(2020),
- Microsoftfor Startups

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Jeshron biotech Solution Pvt Ltd
www. Jeshronbiotech.com

K. Chitra

Chitra started Jeshron Biotech with a focus to develop veterinary nano formulation therapeutics to benefit animals' health and enhance their productivity without compromising on safety and sustainability. Their aim is to produce high quality and innovative products that are eco-friendly and cost-effective which benefits farmers and animals. Their veterinary products add value to the operations of small farms to large integrated businesses and covering all species from aqua to poultry.

Product Description:

Product 1: Bioteat – Dip (Post Dip for prevention of mastitis in Dairy cattles)

A unique formulation named Bioteat Dip made up of a thick herbal nano biopolymer solution is prepared and used as a protective covering to prevent mastitis. This formulation is biodegradable, eco-friendly and made up of natural food-grade materials which forms a protective covering on the udder that is easily washable. BoviMastrt cup is a splash proof biodegradable cup that holds approximately 250ml of Nano biopolymer dip solution which will prevent mastitis in dairy farms.

Product 2: Estrs – Sponge (Progesterone sponge for easy cattle breeding)

Estrs-Sponge helps to improve the effectiveness of reproduction programs by tightening estrous synchronization, so groups of dairy cows and heifers come into heat and can be bred in a narrow window.

Product 3: PoulClenz (Poultry Sanitizer & Egg wash solution)
PoulClenz is a dual-purpose sanitizing solution ideal for cleaning all poultry equipment including feeder, drinking, and brooders equipment and suitable for egg washing without rinsing.

Estrs – Sponge

PoulClenz

Bioteat – Dip

Stage of Development

1. Bioteat - Dip: Launched, ready to demonstrate/licence
2. Estrs - Sponge: under validation
3. PoulClenz: under validation

Impact of product

Bioteat – Dip: The products that are commercially available in market to prevent mastitis are mostly made up of chemical formulations. These chemical residues are released into the milk and changes the quality of the milk. The product is made up of natural food grade materials which plays an important role in protective skin covering to defend against common mastitis pathogens. It keeps the teat ends soft and healthy. The Poly herbals act as natural strong antimicrobial agents to provide long-lasting barrier protection. It is natural formulation, eco-friendly product and leaves no residue in milk.Reduces somatic cell count and increases 15 % milk production.

Estrs – Sponge: The easy cattle breeding technology is user friendly and increases high conception rate in cattle. This technology is a time saving process and can be done by any layman without the help of veterinarians. The controlled release of drugs results in induction of heat within short time frame for synchronization of estrus in lactating dairy cows, and dairy heifers, induction of estrous cycles in anestrous lactating dairy cows.

PoulClenz: PoulClenz is a blend of all natural nano antimicrobial enzymes which will kill all type of bacteria and continuous working throughout the day and provide long lasting protection for surface. It eliminates odours and increase the shelf life of eggs.

Other Achievements:

- Won the First prize in the Oral Presentation and Product display stall on "Promoting Start-up Programmes on Veterinary Entrepreneurship" by Veterinary Incubation Foundation
- Received BIRAC BIG Grant and IVP (Voucher A) award for prototyping

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Ashva Wearable Technologies Pvt Ltd
www.ashva.xyz

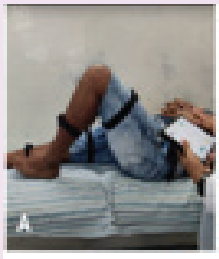
Anmol Ajay Saxena

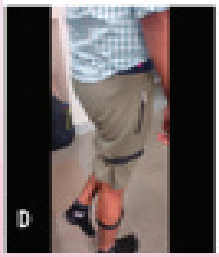
Anmol is founder and CEO of Ashvaweartech Pvt. Ltd. She is electronic engineer by training and wears multiple hats as a startup founder including business development, market research, intellectual property development, financial strategy development, fund raising and pitching, networking etc.

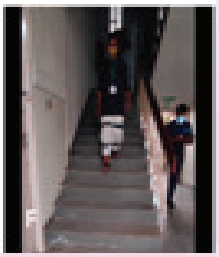
Product Description:

Fitknees Assess™ integrates tests like range of motion, muscle strength, balance, gait analysis, functional climbing test, 6-minute walk test and subjective assessment into one single system.

Fitknees Assess integrates multiple Crores worth assessment equipment into a sleek, intelligent and holistic testing system, making data driven chronic knee assessments available and accessible to all centres







Impact

The hallmark data analytics reports "The Kneeports" are designed like blood test reports (test results and a comparative normal range) which are super easy to understand by patients.Physiotherapy Centres add an extra revenue stream and increase the novelty of their services by offering tech - enabled services at affordable costs.

Stage of Development

Clinical validation stage for which IEC approval and validation protocol is already in place.

IP status

1PCT is filed.

Other Achievements:

Raised investment of INR 2.0 Cr (Nidhi Prayas, WEE Foundation, BIRAC BIG, BIRAC SEED Fundand Seed Round - Zoho, IKP, LetsVenture, Bipin V.

1st Place at Angel Hacks, Chennai 2018

1st Place at CEBIT + Intel IOT hackathon 2016

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Virtis Bio Labs
Science For Better Life

Virtis Bio Labs Pvt Ltd
www.virtisbiolabs.com

PN Shilpa

PN Shilpa is a postdoctoral fellow from University of Malaya, Malaysia and started Virtis Bio Labs Pvt Ltd returning to India. With BIRAC support the kit development and animal cell culture facility for developing monoclonal antibody were accelerated. At present the company does monoclonal antibody, assay development and cell culture service.

- IIGP 2014 Top 50 Innovators

Product /Technology:

The product is an immunochromatographic assay which can detect bacteria from small volume (~30 µL) of whole blood samples rapidly (~15 minute). This system will enable to identify neonatal sepsis causing pathogens and facilitate early detection, diagnosis and patient management of babies with systemic infection.

Immuno dot-blot kit for detection S.aureus

Stage :

Validation

Impact:

Point of care diagnostic for detection of *S.aureus* neonatal sepsis with small sample volume, high sensitivity and specificity in 15 minutes at low cost.

Other Achievements:

- Raised investments of INR 54.47 Lakhs
- 114 & 2014 top 50 innovators
- Investment received - 54.47 lakhs

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SM Plant Production Technologies Pvt. Ltd.

www.smplantproductiontechnologies.com

Sukhada Mohandas

Sukhada is an accomplished scientist with more than 40 years of research experience. She has established protocols for large scale multiplication of banana plants using embryogenic cell suspensions and shoot tips in bioreactor. Her passion to work for farmers resulted in this company taking shape.

She floated this company in November 2015 in a small scale in a laboratory in IIHR, Bangalore. Later in 2016 They moved to an independent building with a full-fledged production unit, for nearly 2 lakh plants per annum.

Product/Technology:

The current availability of tissue cultured banana planting material is around 200 million plantlets, while the demand is more than 1800-2000 million plantlets. With the production being only 10% of the total requirement, there is an enormous potential for any technology that can enhance the production level. India's exports of banana which was only USD 48 million in 2017 is increasing very rapidly due to demand for Indian varieties abroad.

Stage of Development:

Commercialisation started

Impact:

The technology will improve the livelihoods of households to take care of family's financial needs. In totality, the technology will improve the social welfare through enhanced food security, diet diversification and increased income.

Other Achievements:

- Dr.Gopinath Memorial Gold Medal for obtaining Ist rank in M.Sc- 1972
- Jawaharlal Nehru Award for best Ph.D thesis -1980
- Indian National Science Academy's Young Scientist Award- 1981
- C.N.Patel Industrial Award for women scientists by VASVIK foundation-1993
- Punjab RaoDeshmuk Outstanding Woman Agricultural Scientist Award-1998
- Indian National Science Academy -French Academy of Science's Exchange fellowship
- Department of Biotechnology's National Associateship- 1988
- Fellowship of Association for the Improvement in Production and Utilisation of Banana 2008 and Fellow ship of Society for Promotion of Horticulture 2018
- BIRAC Big Grant
- BIRAC-TIE-2019 - Women in Entrepreneurial Research Award (Winer)

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Drumlins Water Technologies Pvt Ltd
www.drumlinswatertechnologies.com

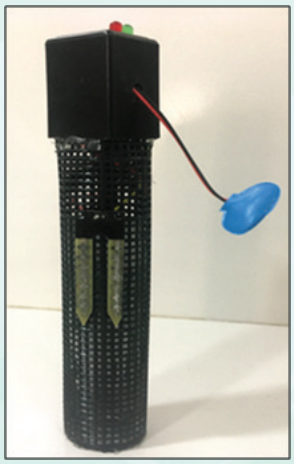
Suphiya Khan

Dr. Suphiya Khan is presently a Chevening Fellowat University of Oxford, Associate Professor and Director of Drumlins Water Technologies Pvt Ltd.Sheis ascientist/Professor by passion and Bioentrepreneur by choice to nurture women scientisttobecome an entrepreneur. She is the recipient of many national and international awards for contribution in scienceand innovation. She has successfully run the MHRD Centre for Excellence onwater and energy. Hervision is todeveloptechnologiesfor affordable and safe water and create employment for women. She is following the new path nurturing women scientist to become anentrepreneur, the pathwhich is lesstravelled.

In 2015, her lab came out with a technology that used dipping pouches for the removal of fluoride from tea and potable water. This idea caught wide media attention. To mature this idea, she established the company in 2019, which is now making progress toward employing many women scientists and making India a place where there is the right amount of fluoride in the water. Over the years her research projects and spinoff company have created opportunities and employment for more than 15 fellow women scientists and colleagues. That, in itself, has been very rewarding. She was awarded CRISP fellow at Oxford University in the spring of 2019.

Product/Technology

Smart Universal De-fluoridation Nano Rod equipped with sensor, Drumlins delivering a social impact by solving the major problem of fluoride contamination, by providing smart and sustainable solutions to the communities at affordable price without utilizing water and electricity for operations.



Stage of development: :

Validation

Impact:

The development of Affordable De-fluoridation technology for drinking water to solve the problem of Fluoride contamination from Water

IP status:

4 Patents Filed

Other Achievements:

- BIRAC-TIE Women Entrepreneurial Research Award (Winer)
- NASI Reliance Platinum Jublee Award 2021 for development of de-fluoridation technology
- Water Digest Award 2021 for women contribution in water sector
- Women Transforming India Awardee 2019 by NitiAyog
- Wonder Women in STEM (Science, Technology, Engineering, Mathematics 2021) Award from Director AIIMS Delhi.
- TIE Women Runner up Rajasthan 2020
- Investments received: INR 10 million

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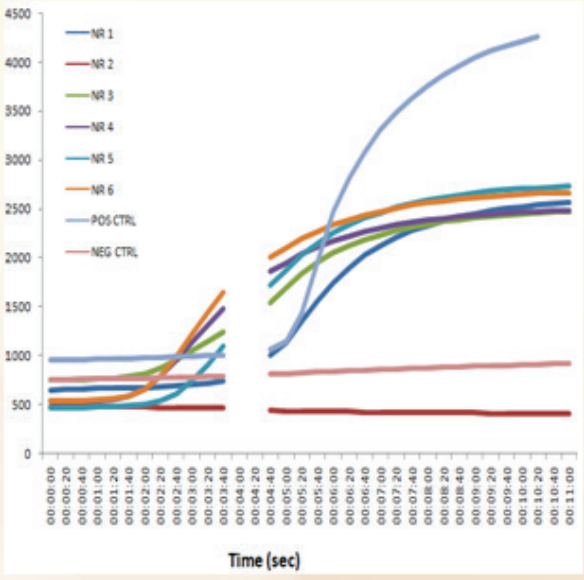
Nextec Lifesciences Pvt.Ltd
www.nexteclifesciences.in

Ranjana Srivastava

Dr Ranjana Srivastava, former Head, Microbiology Division at CSIR-Central Drug Research Institute, Lucknow and Founder Director of Nextec Lifesciences is an astute professional with 38 years of rich and qualitative experience in molecular biology and biotechnology. With an initial start-up at University of Brussels, Belgium and post-doctoral research at Brown University, USA, she joined CDRI as faculty and continued therein. She was also visiting scientist at Center for Vaccine Development, Baltimore, USA and Institute Pasteur de Lille, France.

Her most significant contribution includes development of a TB diagnostic kit, surrogate screens for high throughput screening of anti-TB compounds, mining new drug targets from TB genome by genetic approaches, screening of novel chemical entities against Tuberculosis and NTM, development of in-vivo murine infection model for *M. fortuitum* and molecular approaches for selection of genes expressed during infection of M. tuberculosis in host.

Product Description:



Detection of M. tb infection in clinical samples

A DNA based kit for Early and accurate diagnosis of Tuberculosis, relies on amplification of M. tb specific sequence by an isothermal recombinase polymerase amplification (RPA) and its online detection within 20 minutes of reaction. The primers and probes are IPR of NLPL.

Stage of development:

Validation, ready for licensing

Impact:

The assay developed by Nextec Lifesciences is rapid, operates at constant convenient temperature 39°C, reagents do not require cold chain and provide online detection within 10 minutes of rection in a portable device. It is non-hazardous, user friendly, rapid and affordable price add value to diagnostic reagent and can be used at Point of Care POC.

IP status:

1 Indian Patent granted

Other Achievements :

- "Women Entrepreneur Award 2019" from Delhi Management Association
- BIRAC-TiE award for women in Entrepreneurial Resaerch 2019
- Woman leadership Award, Uttar Pradesh best Brand Awards, 2019
- Inspirational Scientist Award by VDGOOD Professional Association 2021
- Investments received: Rs 37.10 Lakhs

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SynerSense™

SynerSense Pvt. Ltd.
(www.synersense.com

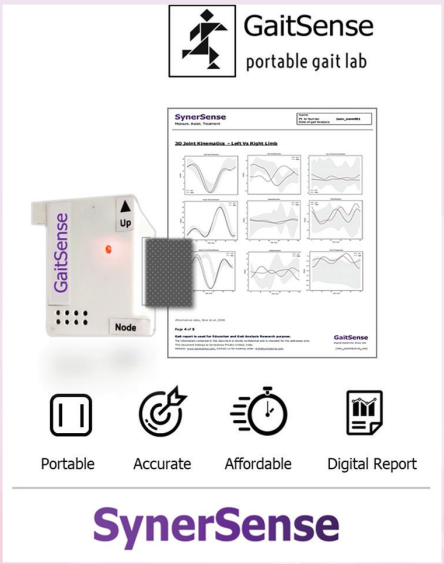
Bhumika Patel

Bhumika Patel is a co-founder of Synersense Pvt. Ltd that works for people suffering from orthopedic and neurological disorders. Bhumika is passionate about bringing the solution through portable and wearable gait analysis device that helps to study and make clinical decisions faster and accurate to provide effective treatment strategies in Orthopedic, neurological and physicaltherapy.

They have developed a proprietary medical device that provides lower limb balance and walking analysis. Their device leverages gait dataanalysis platform which assists orthopedists, neurologists, and physiotherapists to make clinicalassessment decisions.

Product /Technology:

GaitSense® is a wearable and portable 3D Human Motion capture device for surgical Pre or Post operative, treatment evaluation, performance assessment and walking pattern data analytics in Healthcare and Sports industry to reduce risk of injury.



Impact of product:

The hallmark data analytics reports "The Kneeports" are designed like blood test reports (test results and a comparative normal range) which are super easy to understand by patients.Physiotherapy Centres add an extra revenue stream and increase the novelty of their services by offering tech - enabled services at affordable costs.

Stage of Development :

Validation

Impact:

GaitSense® device is powerful device and much affordable at highly accurate and provides immediate results, compared to conventional methods, at similar efficiency for gait analysis.

IP status:

3 Patent Filed and 1 Granted, 11 registered

Other Achievements:

- IoT Accelerator program under CISCO, CIIE-IIMA
- Leaders in Innovation (LiF) program, Royal Academy of Engineering
- TiE-BIRAC Winner Award for women in Entrepreneurial Research.
- Synersense was selected in Top 50 Finalist – IIGP 2.0 Innovation program
- Synersense was selected in Top 50 Finalist – Next Big Idea 2019, India-Canada Program.
- CHIME Best award – Transforming Healthcare with IT International conference.

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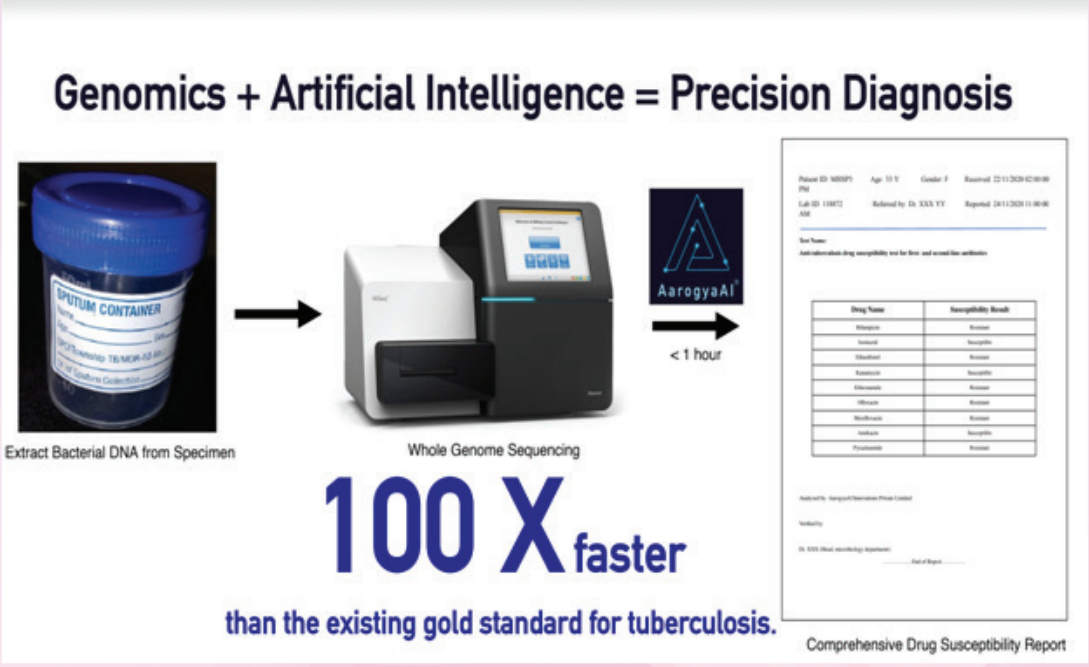
AarogyaAI Innovations Pvt Ltd
www.aarogya.ai

Praapti Jayaswal

Praapti (Co-Founder & CEO), is a PhD in tuberculosis research from the Translational Health Science and Technology Institute (THSTI), in New Delhi. Her expertise is in microbiology and understanding the biology of the disease.

Product/Technology

AAICARE- TB is acombined approach with whole genome sequecing and artificial intelligence, towards scombating antimicrobial resistance in tuberculosis, by generating a comprehensive drug susceptibility report for individual patients, a 100X fasterthan existing standard of care.



The product is an immunochromatographic assay which can detect bacteria from small volume (~30 µL) of whole blood samples rapidly (~15 minute). This system will enable to identify neonatal sepsis causing pathogens and facilitate early detection, diagnosis and patient management of babies with systemic infection.

Stage of development:

Clinical validation/pre-commercialization

Impact :

AarogyaAI® salgorithm is extremely relevant as it provides a comprehensive precision drugs susceptibility report for the patients, based on the genome of the Mycobacterium tuberculosis infecting the patient. This quick diagnosis eliminates empirical prescription of antibiotics and ensures effective and timely treatment for the AarogyaAI®' salgorithm is extremely relevant as it provides a comprehensive precision drug susceptibility report for the patients, based on the genome of the Mycobacterium tuberculosis infecting the patient. This quick diagnosis eliminates empirical prescription of antibiotics and ensures effective and timely treatment.

IP status:

2 Patents filed.

Other Achievements:

- Seed investmentfrom Info Edge India Private Limited, Avaana Capital, FirstIn Ventures(USA) and Entrepreneur First (2022); Illumina Accelerato Program, SanFrancisco(2021);
- GE India Edison Healthcare Accelerator (2021);
- MeiTyGAIN Accelerator (2021);
- Pre-seed investment from Entrepreneur First(2019),
- Niti Aayog ANICARISE Grant(2021);
- Won the Indo-Sweden HealthcareInnovation Challenge (2021);
- Winner in NASSCOMJan CareInnovation Challenge(2021);
- Winners Data Innovation Bazaar Award(2020);
- BIRAC, DBT and TiE WinER Award (2020);
- DST Govt. of India- NIDHI PRAYASGrant (2020).
- Investments received: USD855,000

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Upsoil Technologies
(OPC) Pvt Ltd

A Soumya Rao

A Soumya Rao initially started her journey as a young women innovator with a vision to reach out to the marginal farmers and agricultural practitioners and thereby help them to know the exact quantity of their nutrients in the soil. Her innovation was supported by DST EIR Fellowship and then BIRAC BIG scheme. Additionally, she has received funding support from Millenium Alliance, CIIE, Villgro, etc.

Product/Technology

Upsoil is developing Point-of-Use device Soilscope. It is soil health diagnostics and recommendations device which gives the quantitative estimation of the nutrients present in the soil and actions needed for optimum yield in farmers understandable language. Soilscope is quick, low cost, portable and affordable product for the farmers which will give the results on-site. It also provides fertiliser and crop recommendations particular for the soil type.

Stage of Development :

Field testing and validation

Impact:

The developed prototype has been deployed for field testing with the help of rural farmers, urban farmers, urban gardeners, domestic gardeners, research labs, etc. The developed prototype has shown good sensitivity and accuracy and has also calculated the average time to detect is 5 – 10 mins including sample preparation. For an acre, a user needs to do 10-15 tests to get an average optimized data of the field.

Other Achievements:

- Millenium Alliance Award, Agritech – 30.00 Lakhs
- Social Alpha Agritech winner – 30.00 Lakhs
- CIIE-IIM Ahmedabad – 5.00 Lakhs (SEED Fund)
- Startup Oasis & Villgro - 5 Lakhs

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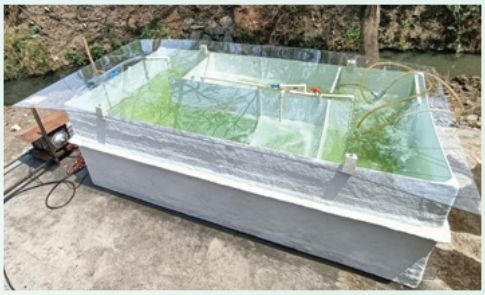
Agro Morph Technosolutions Pvt Ltd
www.agromorph.com

Akanksha Agarwal

Akanksha is a PhD graduate with a passion for sustainable technologies. Her entrepreneurial journey began towards the end of her doctoral studies wherein she realised the immense potential that algae as a substrate offered. She continues to explore and develop processes that yield valuable products from algae while utilising and remediating waste streams.

Product/Technology

Sustainably produced algal supplements, pigments and proteins: Algae have the natural potential to produce many value add compounds, high potency antioxidants and a variety of food and feed ingredients through a sustainable process. Agromorph designs processes to maximally utilize waste streams (waste waters, effluents and flu gases) for the engineered production of algae and offer a huge cost advantage to the client as well as provide a circular economy for the manufacturing unit. Customers benefit from adopting budget friendly, non-animal sourced products from carbon negative processes.



Stage of development

Validation

Impact

Each product developed through Agromorph's sustainable processes offers environmental, societal, and economic benefit. Each ton of algae produced can sequester up to two tons of carbon dioxide from the atmosphere while generating substantial amounts of oxygen. Algae has the added advantage of growing in waste waters which means it does not compete with the population's requirement for freshwater resources. This makes algal cultivation for products not only environmentally feasible but also economically sustainable for the manufacturer. A huge societal advantage with our products is the non-dependence and substitution of depleting food resources and animal-based sources for extraction of many vital products like omega oils, vitamins, proteins, and many antioxidants.

IP status:

1 Filed

Achievements:

- One of the 15 BIRAC TiE Winner Award (3rd Edition)
- Awarded with Akamai accelerator fund (2022),
- Top 20 winner of the iAspire program 2021-2022 by India Accelerator
- Asia Pacific finalist in the global Hello Tomorrow Deep tech Challenge 2021,
- Most promising start-up globally awarded by Atal Innovation Mission & Innovation Centre of Denmark (AIM-ICDK Water challenge)
- Invited to represent Indian contingent for the International world water week (IWWW 2022) congress

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HIDAA LIFE SCIENCE LLP
www.dbello.in

MENKA GURNANI

Menka has seven years of experience in the field of microbiology and industrial farmentation.

Product/Technology:

Filling the nutritional gap with vegan vitamin D :D'bello ®.

Vitamin deficiency is evident in all age groups and both in urban and rural areas. At present in India, animal derived /chemically synthesized Vitamin D3 is available as medicine. Till now, there is no rich vegetarian food source identified for vitamin D which can meet daily needs.

With extensive research first time in India, the start-up has successfully developed natural vitamin D source, which is chemical free, 100 % vegan, whole food nutrition from mushroom and microbial source and cost effective. This powder, like salt or sugar, can be added to any food such as chapatti, sabaji, curry, curd, salad, etc. It does not alter the taste and texture of the food and is suitable for all dietary habits and all age groups. They have also developed the technology for the staple food fortification like wheat flour to reach the mass population. Also, developed vitamin D chocolates and Khakhara (roasted wheat crisps) to serve different customer segments

Stage of development:

Commercialized

Impact:

- Fight the malnutrition: Vitamin D is need of the nation. 85% population is vitamin D deficient.
- Reduce import dependency: Presently country imports vitamin D2 from china and other countries. This solution is 100% natural plant sources and fully made in India. It is one step towards Atmanirbhar –Bharat.
- Earning opportunity for the landless women farmer: Mushroom cultivation at large scale will increase the farmer income and able to cultivate without requiring the large land.

- Impact on environment: Cultivation of mushroom at large scale will utilize agricultural waste like wheat, rice straw, etc. It will resolve the burning issue of agricultural waste. It will also improves the soil fertility because after cultivation of mushroom this agriculture waste become very good fertilizer.

IP status:

Trademark: D'bello® granted

Other Achievements :

- Awarded "Trend Setter Award" by Gujarat Innovation Society (GIS) in presence of Honorable chief minister shreeVijaybhaiRupani of Gujarat for developing natural vegan vitamin D and delivering the innovation for the healthy growth of the nation.
- Won the "Super Jury Scale up Award "at vibrant Gujarat startup and technology summit 2018 by Honorable Deputy chief minister Shree Nitin bhai Patel of Gujarat.
- Selected in Social entrepreneurship boot camp and Won the First Prize at Pitch competition organized by Tie Global (Ahmedabad chapter). GUSEC, Brihati foundation.
- Won the "BIRAC TiEWInER Award"
- Selected among 30 entrepreneurs across the India for Residential Executive program by Indian Institute of Management – Ahmedabad (IIMA) for social entrepreneurs.
- Finalist at National Bio Entrepreneurship Competition (NBEC) 2019
- Winner - TiE Ahmedabad chapter for TiE global summit 2020 held at Dubai.
- Finalist for the National start–up Award NSA 2021 DPIIT.

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CYGEN CONSULTANCY PVT. LTD.

www.cygengroup.com

Tanushree Devi Laishram

Young & Enterprising Doctor with passion and vision to Revolutionize Healthcare with Technology, Dr. Tanushree Devi from the state of Manipur founded CYGEN, a Health Tech Company based out of India and Malaysia at present. She's working closely with IBM India, IEEE, NAL, Chinmaya Mission Hospital, Jain Hospital and Shimoga Institute of Medical sciences towards a better healthcare for all. She's an active member of the North East Development Group and a pioneer women entrepreneur in the region.

Product/technology:

CYGEN provides application focused, patient-centric, innovative, cutting edge technological solutions to healthcare problems. Given the gap in health care access and delivery system and considering the growing importance and urgency to resolve them, CYGEN group has created a cloud based, patient-centric, innovative, cognitive predictive & preventive healthcare platform.Healthcare mobile monitoring units that will improve access to health care services via state of the art technology. Each Centerwill be staffed with one Asha worker / nurse and one lab assistant and will carry at a minimum the following hardware: Weighing machine, 12 Lead ECG, 2 Lead ECG, Non-contact Temperature, Hba1c analyser, Urine analyser, Blood pressure device, Mobile Lipid Analyzer, Glucose Analyzer, Hemoglobin Analyzer Pulse oximeter, Spirometer & Android tablet.TAT (Turnaround Time) – within 15 mins complete test report can be processed

Stage of development:

Commercialized

Impact:

- Enhanced clinical workflows
- Identification of patients for better individual and public management
- Prioritization of care
- Visualization of key population trends
- Improved utilization of management
- More timely interventions
- Immediate referrals to Doctors – virtually or booking appointments
- Registering the patient in our online platform
- Health assessment using the latest IOT devices including Covid-19 assessment
- Predicting the risk score for the occurrence of the lifestyle related diseases

- If required, connecting the patient with the most suitable doctor according to their available time slot.
- Storing the data securely in the our database for future reference.
- The patient will have their personal account where they can easily access their health record.

Other Achievements:

- Top100 Echelon Summit Asia_Singapore
- Top100 Biz Award_Malaysia
- ELECRAMA Grand Jury Award Winner – Impact award for CYGEN
- Global Digital Health Company of theYear 2019_India
- Thought Leader of the Year_India
- BIRAC-TiEWInERAward_India
- Digital Health Innovation Winner 2021_Malaysia
- Startup of the Year Award in Healthcare 2021, Meity, NASSCOM & UN – for Women

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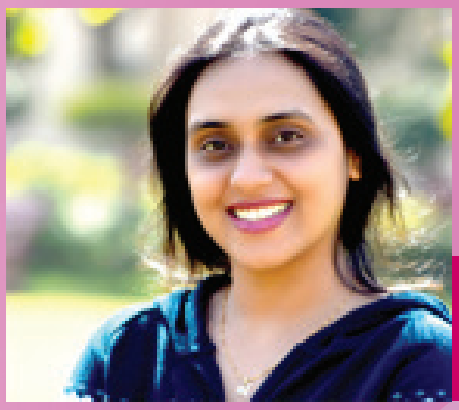

Medzak Healthcare Pvt. Ltd.
www.medzak.co

Varsha Singh

Varsha leads the innovation of product development at Medzak and has more than 10 years of experience in research and development. She is the recipient of Gandhian Young Technological Innovation Awards (GYTI)-2016 and was the Top 10 finalist in Intel-DST Challenge-2016. She was also selected as one of the Indian delegates to represent India at the 2nd BRICS-Young Scientist Forum, 2017 at Hangzhou, China. Varsha is PhD in Biochemistry & Molecular Biology from Panjab University

Product/Technology

Medzakhas developed and intends to release an innovative ophthalmological handheld, a point-of-care diagnostic device, MeiboX, for the preliminary diagnosis of eye diseases, abnormalities, and features. They have developed a unique lens system combined with AI technology to non-invasively diagnose ten distinct eye disorders based on solid R&D experience

Stage of development

Validation

Impact :

Ophthalmic devices are currently expensive and only have two to three applications. The devices are bulky and costly and require trained technicians for operation. Medzakhas created a low-cost solution to fulfil the needs of the ocular market, where diagnostics are difficult to make and import, particularly in developing nations. Medzak intends to use advanced optics to capitalize on market development and penetration prospects in the field of non-invasive preliminary AI-based ocular health detection systems. Demand for ocular therapy is roughly increasing every year, particularly in Southeast Asian and African countries where ocular diseases have seen a 17% rise in cases.

IP status:

1 patent filed

Other Achievements:

- Received BIRAC BIG Grant
- One of the top 16 in BIRAC-TiEWInER Award (3rd Edition)

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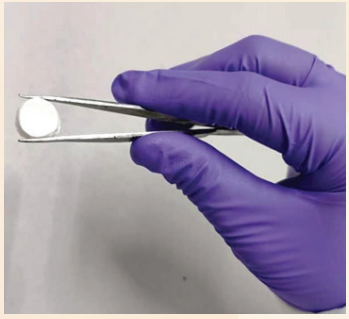
Thanmatra Innovations Pvt Ltd

Anusha Ashokan

Anusha Ashokan earned her Bachelors in Biotechnology and Biochemical Engineering from Kerala University, her Masters and PhD in Nanomedical Sciences from Amrita Vishwa Vidyapeetham. She co-founded Thanmatra Innovations Pvt Ltd in 2018 along with Dr Girish CM, Dr Vijay Harish and Dr Manzoor K. Thanmatra Innovations Pvt Ltd focuses in the area of development of products to improve efficacy of cancer immunotherapy.

Product/Technology

Although a number of therapeutic cancer vaccine trials have been conducted since the 1990s, none of the peptide-based vaccines were translated to clinics. One of the main reasons for the failure was inadequate anti-tumor cytotoxic T cell activation. In order to improve the immune cell response of the therapeutic cancer vaccines, Thanmatra has optimised 3D Vax, an implantable vaccine, for a sustained release of tumor antigens and other immunomodulators.3D Vax is an engineered composition containing immune cell-stimulating polymers, tumor antigens, immunomodulatory drugs, and adjuvants. 3D Vax can be a potential platform for enhancing the efficacy of current therapeutic protein/peptide based cancer vaccines in ongoing clinical trials.



Stage of Development :

Proof of concept demonstrated in mouse melanoma models.

Impact:

- 3D Vax has capability to improve efficacy of therapeutic cancer vaccines enabling its clinical translation.
- Potential for development of cost-effective cancer immunotherapeutics

IP status:

Not filed yet

Other achievements :

- BIRAC WInER Award
- UN Women-My Gov Shri Shakti Challenge Award

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Dendrite Laboratories Pvt Ltd
www.dendritelabs.in

Buela P Parivallal

Buela P Parivallal, founded Dendrite Laboratories in 2019.

Product/Technology

Reusable LAMP foldable microdevice membrane platform.

Rice is one of the important crops grown worldwide and is considered as an important crop for global food security. Rice is being affected by various fungal, bacterial and viral diseases resulting in huge yield losses annually. In order to control, prevent the plant diseases and the spread of plant pathogens, it is important to develop rapid, accurate and cost-effective molecular methods for detection of pathogens. Currently, they are developing an enhanced rapid, highly sensitive and specific diagnostic tool using a reusable foldable membrane platform employing the LAMP technology which can prove to be economically profitable.

Stage of development

Proof of Concept stage

Impact

Rapid, accurate, sensitive, and specific diagnostics are essential for protecting plants from pathogens. With the use of isothermal amplification methods like LAMP assay which are faster and can proved to be economically profitable, provides the amplification at molecular level with a constant temperature and do not require any sophisticated equipment, going beyond the laboratory can be made a reality for molecular diagnostics. The amplification stage ceases to be limited by time and equipment and can be put to use in poor-resource setting

IP status

Not file yet

Other achievements

- Received BIRAC BIG Grant
- Runner-up at ELEVATE Unnati 2019.

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Sri Dharani Agrotech Pvt Ltd

VedulaVenkata Lakshmi

VV Lakshmi is a true example of Faculty entrepreneur. She founded Sri Dharani Agrotech while serving as a professor of Microbiology at Sri Padmavati Mahila Visvavidyalayam, Tirupati. Dharani Agrotech aim to develop a range of product including Keratinase enzyme, Organic Manure, and Biofeed.

Product/technology:

- Kerazyme Enzyme : Keratinase enzyme from Bacillus sp Active in degradation of keratin substrate in following forms:
  - Crude enzyme : Finds application as feed supplement
  - Pure enzyme: Pharmaceutical, Cosmetic, Disinfection (Antiprion) and other medical applications.
- Bioplus organic manure: KTF based organic manure which increases water retention capacity of soil and
- Biofeed : KTF based feed supplement for poultry and aquaculture.

Stage of Development:

Kerazyme Crude Keratinase enzyme - Ready to Launch

Impact :

Indigenous and cost-effective production of keratinase with high enzyme activity and stability. The residue by-product after fermentation can be processed to convert into organic manure (Bioplus organic manure) and Feed supplement (Biofeed). That can be used in the drought-prone area to increase water retention, and sustainthe release of Nitrogen in the soil. Significant reduction in feed cost (Rs. 30 to Rs. 16/Kg) helps in boosting the poultry farming economy.

IP status:

One patent is granted and one is published

Other Achievements:

- BIRAC BIG Grant
- Received DSIR PRISM Grant of 35 Lakhs for Formulation And Development Of Keratinase Treated Feather Waste Based Organic Manure and high nutritive value feed

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Swayogya Rehab Solutions Pvt Ltd

www.swayogya.in

Pooja Kumari Jha

Swayogya Rehab Solutions (SRS) was jointly founded by Ms. Pooja Kumari Jha and Dr. Vikas Kumar in the year 2019 and has developed a chondroprotective knee health monitoring orthotic device "Mi-Knee", a non-invasive, non-drug, and portable treatment regime for the treatment of persons with knee osteoarthritis. Ms. Pooja conceptualized this idea during her Social Innovation Immersion Programmeby BIRAC at KIIT TBI and thereafter, received the NIDHI PRAYAS grant of DST, GoI, and BIRAC's BIG grant to take this idea forward.

Product/technology:

Mi Knee is a Biophysically stimulated therapeutic knee device for persons with osteoarthritis. Thismedical device has following features:

- A Knee brace with electromagnets customized at an appropriate distance from knee cartilage to provide maximum efficacy in slowing down the cartilage degeneration process.
- Optimized Electromagnets for light weight and maximum efficacy in reducing pain and improving activity of daily living.
- Real-time monitoring of knee health by clinicians and patients.
- Extremely portable, lightweight, cost-effective device

Stage of development:

Validation stage SRS has received around150 pre-orders for their product.

Impact:

More than 36 crores Indian population are suffering from knee joint osteoarthritis. Knee replacement surgery is the gold standard treatment that is being followed in the majority of cases. So, noticing the problem the proposed device is a non-invasive portable solution for osteoarthritic adults which will provide a long-term effect on pain and other secondary symptoms. As a result, a person's overall functionality and quality of life will be improved. Additionally, the long-term application of technology will aid in slowing down thedegeneration process of the cartilage.

IP status:

- Granted Design patent titled "Electromagnetic Knee Brace". Application No. 345739-001.
- Filed complete patent on "Portable, non-invasive system and method for healing and monitoring of joint cartilage" application number as 202011055694A published on 01/01/2021. FER GENERATED

Other Achievements:

- Received Start-up Odisha product development and Market assistance Grant
- Received a Monthly allowance Grant from Start-up Odisha
- Cleared Rehabilitation innovation call by AMTZ, Vizag to get the support

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Bhubaneswar, Odisha

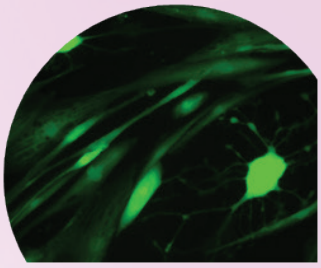
Cuor Stem CellutionsPvt. Ltd.
www.cuorstemcellutions.com

Sudha Warrier

Sudha is an experienced professor and enterpreneur in the stem cell industry, and regenerative medicine. The company is poised to develop new age and definitive solutions for early detection and treatment of neurodegenerative, cancers and cardiac disorder.

Product/Technology

She and her teamt has developed and produced highly predictive human cellular (disease) assay systems for safety and efficacy testing aiming to accelerate drug candidate selection, reduce costs and ultimately increase drug discovery & development efficiency. Alzheimer's disease (AD) is the 5th leading cause of death globally for those aged 65 and older. The current problem is a dearth in the availability of AD neurons of human origin for drug testing. Stem cells provide an opportunity to generate a human cell-based model of AD crucial for drug discovery as well as for investigating mechanisms of the disease.



Stage of development

Validation

Impact :

Stem cell technology fast-tracks the delivery of better medicines to patients by improving the drug discovery process. Developed a highly predictive human disease model assay systems for efficacy testing aiming to accelerate drug candidate selection, reduce costs and ultimately increase drug discovery & development efficiency.

IP status:

One patent granted.

Other Achievements:

- Supported under BIRAC – SPARSH Grant

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ISP Enviro Pvt. Ltd.
www.jspenviro.com

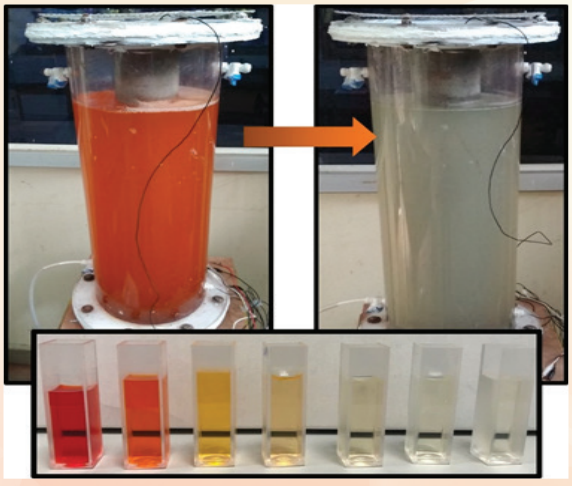
Priyadharshini Mani

Pryadharshini is a PhD graduate and have been an entrepreneur for over 10 years in the textile industry. She has been felicitated at various Universities for achievement as a woman entrepreneur.

Product/Technology

BioelectrochemicalSystem (BES) for textile effluent treatment. JSP Enviro is working on an energy efficient and sustainable technology for treating industrial effluents. BES consists of two integrated system complementing each other. The microbial fuel cell (MFC) acting on the organic contaminants and the capacitive deionization (CDI) acting on the inorganic salts. The MFC system is an energy positive technology that utilizes enriched microorganisms to degrade the contaminants in the effluents and produce electricity. Capacitive deionization involves removal of the salt from water by application of a low voltage to trap the ions.MFC is energy positive, and power from MFC runs the CDI system therefore they are self-sustainable.

The modular and portable design of the BES is unique as it occupies reduced space and is a tangible asset with residual value for the companies compared to the conventional concrete structures. The integrated technology is novel and first of its kind in the field of effluent treatment in India.



Stage of Development :

Validation

Impact:

The prosperity and growth of the textile industry in India comes at a high cost to the environment and human health. Textile is the largest consumer for water in industry accounting for usage of 93 billion cubic meters annually. Textile effluent pollution accounts for 20% of the total water pollution and contributes to 3 billion tons of annual carbon emission. This has multilevel impacts on socio economics, health, and environment. Small and medium scale industries cannot afford or are burdened by high cost of the current water treatment systems present.

Our BES technology is suitable for industries at any scale and provides return of investment in terms of energy savings and cost. BES is a cost effective and affordable solution to keep small businesses alive and running to maintain the livelihood of millions of people.

Other achievements :

- JSP Enviro was a finalist at Carbon Zero Challenge-2018.
- 2nd prize winners of Climate Launchpad 2018 event.
- JSP Enviro is part of international accelerators such as Fashion For Good, Plug and Play.
- Featured in newspapers such as The Hindu, Indian Express, Financial Times, Times of India for our innovative technology in 2019.
- Received the best pitch award for Bio-NEST event held at IIT-Madras (2019).
- In 2021, was featured in Economic Times a promising deep tech startup in India

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UNINO
Unique | Innovative

Unino Healthcare Pvt Ltd
www.uninohealthcare.com

Harshini Zaveri

Harshini started her entrepreneurial journey with Stanford India Biodesign programme where she went through a complete cycle of biodesign process, viz. clinical immersion, need identification, disease state analysis, market research, competitive landscaping, need-screening, brainstorming, concept generation, clinical feedback, concept screening, and prototype development. She developed a cost-effective catheter fixation device to reduce complications of tube thoracostomy procedure called plruraGoh and filed for Patent. After working with several Start-ups and Corporates she founded UNINO Healthcare. She has consulted designs and helped other Health-tech start-ups to create impact with the services, start-ups like CareNX (in maternal healthcare space), Nemocare (infant vital monitoring space), etc through the complete cycle from idea to market

Product/Technology

PleuraGoh is a chest tube securement and management device that can be used with any marketed chest tube without the use of sutures to secure chest tube. It prevents reoccurrence of Trauma induced (iatrogenic) pneumothorax.It creates barrier to air leak into the chest wall and securely prevents interior and exterior tube dislodgement. Additionally, it also facilitates leak proof removal of the chest tube to prevent re-intervention of the same treatment.This patented technologyis expected to reduce the patient's hospital stays and improves the efficacy of the treatment by reducing the chances of skin irritation, infection and air leak into the pleural space and air leak related complications that arise during this procedure by 80% compared to Standard of Care.

It is expected to reduce more than 90% of the complications associated with the chest drain procedures and improve patient outcome with reduced pain and reduced economic burden.

Stage of Development :

Clinical validation.

Impact :

UNINO an abbreviation of UNIque and INNOvative solutions, developed to create lasting impact on serving mankind.With more than 125 million cases of tube thoracostomy worldwide, and market size expected to increase up to USD 9.2 billion by 2025 post covid as there are increased case for heart and lung diseases which may need surgical intervention. However, the current complication rates with procedure is high as 30%. plueraGoh reduces recurrence rate, ease of procedure by avoiding the usage of sutures trauma.plueraGoh is efficient and cost-effective treatment. Enhances the gold standards of plueraldrainage treatment. A treatment that is associated with majority of thoracic surgery. pleuraGoh is expected to be used with every procedure to bring improved patient out come and great amount of trauma management can be achieved with reduced cost to Patients.

IP status:

Granted Patent title: Fluid Extractions Device, Patent no.: 370099

Other Achievements:

- Received BIRAC BIG grant
- GUSEC her Start 2.0, 2021
- Selected amongst Top 100 ideas for 'Uplift' mobility solution for elderly and conditional patients.
- iDesign Award, Runner up, 2014
- Museum Of Outstanding Design (MOODs), Italy,
- Designomics Award Winner, 2012

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Silverynanos Innovations LLP
www.hapito.in

Divya Rathod

Divya Rathod is the founder of Silverynanos Innovations LLP and Divya Innovation. Her entrepreneurial journey started with an innovation to prevent UTI infections and provide hygienic public toilets. She developed HAPITOProtectors for toilets to get infection less and easy cleaning toilets for ONE MONTH preventing UTI and germs with saving water and environment from harmful chemicals. Awarded by BIRAC, NMIMS, IIT BOMBAY, UNDP , UN WOMEN , UN EMPRETEC, UN ESCAP, RB Ingen, SKAUST KASHMIR, Etc

Product/technology:

Product/technology:Every year 150 million people suffer from UTI leading to bladder cancer and the major reason behind is Unclean and Unhygienic public toilets. Cleaning them after every use is impossible and water used in cleaning after every use is ample wastage. Silverynanos has innovated "HAPITO" Protectors which is antibacterial, antifungal, antialgal, antibiofilm, scratch resistant, water and stain repellent which forms a 10-micron thin transparent film on the toilet keeping it clean, odorless, waterless and infection less for a MONTH with just single application. HAPITO has a culmination of Nanotechnology and Chemistry making the product stay for a month and also saving up to 55% of water wastage. Silverynanos strongly believes in “Prevention is better than Cure.” The purpose of the companyis to save the environment from harmful chemicals and pollutants, for which we have been recognized by UNDP for our application of SDG goals 3, 6 and 9.

Stage of Development:

Commercialized

Achievements:

- Chancellors Challenge 2018, Bombay Stock Exchange TOP 50 (2018)
- TOP 10 Startups in India represented in Singapore InSpreneur 3.0 by high commission of Singapore India
- Winner of UK GO GLOBAL INDIA PROGRAMME 2019 in London by UKDCMS Government
- UNDP National Winner 2020
- Winner of Connect Club, IIT EUREKA 2020
- BIRAC- TIE WINNER 2020
- UN WOMEN NATIONAL Winner Youth Leadership Category
- UN WOMEN Second Runner Up Regionals among 17 countries.
- Project NARI SAAF TOILET KI SAWARI on Indian Railways from Churchgate to Borivali, MUKKTI Foundation 2020, Recognized by UNDP for applying SDG goals 3, 6 and 9 in our innovations.

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Incredible Devices Pvt Ltd
www.incredibledevices.in

Rajwinder Kaur

Rajwinder started her professional journey in 1994 as one of the earliest programmers. After working in India, Malaysia and Europe, she joined one of the leading private hospitals in India. 25 years into the healthcare industry made her realise the biggest issue which is unaffordable and inaccessible healthcare!

With a vision to make healthcare affordable and accessible, she started Incredible Devices to benefit people across all sections of society.

Product/technology:

Incredible Devices invention Catheter Reprocessing System (CRS, Patented) is an automatic computer guided Catheter cleaning machine with inbuilt self-testing and calibration which ensures best cleaning of catheters.

It uses a patented process to clean catheters wherein the Dynamic Fluid Cleaning process generates 74 times higher fluid pressure to remove biofilms. CRS generates mechanical vibration to remove surface diffused proteins. It is a complex machine which ensures safe reprocessing of catheters thus making treatment safe, affordable and accessible for millions of poor patients. It also avoids hospital-acquired-infection and spread of antimicrobial resistance bacteria. CRS ensures safe disposal of catheters thereby avoiding any viral breakout. Since catheters are reprocessed and reused, biomedical waste generation is reduced by 90%.

CRS has benefited more than 6.5 lakh patients across 10 states in India.

Stage of development:

Commercialized

Impact:

- Affordable Healthcare for All: CRS helpsprovide accessible, affordable and safe treatment to millions of poor/Base of Pyramid patients in India and other developing nations. CRS has benefited more than 6.5 lakh poor patients across 10 states in India.
- Reduce Antibiotic Dose: CRS reduces Hospital Acquired Infection and as a result now, less antibiotic dose is required to treat patients. This avoids mis use of antibiotics.
- Saving 90% Foreign Exchange: India imports Rs 272 Billion of medical goods. CRS intends to reduce 90% import of catheters and saves FOREX.
- Green Technology: CRS promotes safe reuse, reduce carbon footprints and save water
- Swachh Bharat Abhiyaan: Reduce waste generation and also ensures safe disposal.
- Make in India: 100% make in India & Indigenously developed Technology.

IP status:

Granted. Application No. :201811020943 ; Patent No. 311157

Other Achievements:

- Incredible Devices has raised INR 3.48 Cr in the forms of Grants as well as equity investments.
- Won various accolades such as BIRAC TiEWInER Award 2020,
- D. L. Shah Platinum Quality Awards by Quality Control of India, DST LOCKHEED MARTIN India Innovation Growth Programme 2016,
- MARICO Innovation Award 2018,
- First Prize for CII India Innovation Initiative 2016 ,
- Best Innovative Medical Product of the Year 2016 at 22nd International Medical Fair, Young Innovator of the Year 2016 by PGIMER, Chandigarh, ICICI Advantage Award 2018,
- Conquest 2017, MARICO Innovation Award 2018,
- Millenium Alliance Round 5, IC2 Institute's Business Development, USA, NASSCOM 10000 Startup, XLR8AP, IC2 Institute, University of Texas at Austin, USA, NEXUS Startup Hub, American Center, NASSCOM Social Innovation Forum, Indo US Science & Technology Forum Silicon Valley Visit, USA, Intel Innovation Challenge 2014 (Grand Prize Rs 5,00,000/-),
- Intel Academic Forum 2015, CAHOCON, NABH 2015, PANFORIC 2014,
- Fortis Innovation Award 2012 & 2014, Featured in Famous Television Series "India Innovates" NDTV.

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SURAITECH INNOVATIONS LLP
www.suraitech.in

Anuja Duklan

Anuja's journey of innovation started from her village. She was inquisitive about the origin of the source of Shilajit. She continuously researched and developed the high priced ayurvedic food supplement - Shilajit from the latex of Euphorbia royleana plants.

Product/technology:

Discovery of (source of origin of Shilajit, a high value Ayurvedic health supplement, consumed for Anti-aging, rejuvenation, immunity and vigour. She has developed a processes for the formation of shilajit) & process for the manufacturing of antibacterial terpenoids from euphoria royleana plant.

Stage of development:

Under development

Impact:

Their startup is creating much needed socio-economic impact in the form of (prevention) of migration of rural population of Himalayan state to urban areas to seek employment opportunities. It is a rural based innovation, labour intensive with low cost raw material which grows in the backward areas mostly on the slopes of the hills of Himalayas and Semi arid regions of the world. These innovations will have social impact by creating employment opportunities in these areas.

This New Method of secondary agriculture through Plantations of euphorbia royleanaplants,devises to Reverse Land Degradation of hilly slopes and semi arid areas through Soil conservation and carbon sequestration. These plants draw moisture directly from the air, storing it in their thick, thorny stem like branches and leaves .Plants of Euphorbia royleana promote carbon sequestration through Corbon fixation -absorption of CO2 A Green House Gas .

IP status :

Patent application number- 20171103697 is published and application for patent examination is filed.

Other Achievements:

- BioAsia Young Mind Award
- BIRAC-TIEWInER Award
- Receivedfunds from Ministry of Agriculture and Farmers welfare, Government of India.
- Supproted from Startup Council of Uttarakhand.
- Received innovation grant money USD 3425/ from Land Accelerator South Asia, World Resource Institute, Washington, USA.

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SHC Shine Biotech Pvt. Ltd.
www.shcshinebiotech.com

Priyanka Maurya

She is a PhD graduate and started her entrepreneurial in the domain of Diagnostics. She realized that the majority of diagnostic products are eing imported. Besides, the concept of decentralized laboratories was less popularized. In 2019, she started her company SHC Shine Biotech Pvt. Ltd.

Product/Technology

They have developed products for rapid, minimal-resource requiring, LAMP/PCR-compatible and cost-effective isolation of DNA and/or RNA from clinical samples. These isolated DNA/RNA can be utilized for diagnosis of various diseases (such as bovine leukemia virus (BLV) infection in cattle, COVID-19 etc.) They have also developed eqa-SMART DNA-LAMP Mastermix that could also be utilized for disease diagnosis using loop mediated isothermal amplification (LAMP)-based DNA amplification approaches. Moreover, They have developed eqa-SMART ready-to-use bacterial culture media plates forfacilitating research activities in the laboratories. eqa-SMART ready-to-use bacterial culture plates are easy-to-use, quality assured and cost effective for the researchers.

Impact :

The developed kits may help in efficient diagnosis of disease in resource-constraint settings and contribute in better management of the diseases. The developed reagents may help the researchers to develop new diagnostics kits.

Other achievements:

- BIRAC TiE Women in Enterpreneurial Research (Winer) Award
- BIRAC SPARSH funding and Covid 19 research consortium Award

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Heamac Healthcare Pvt. Ltd.
www.heamac.com

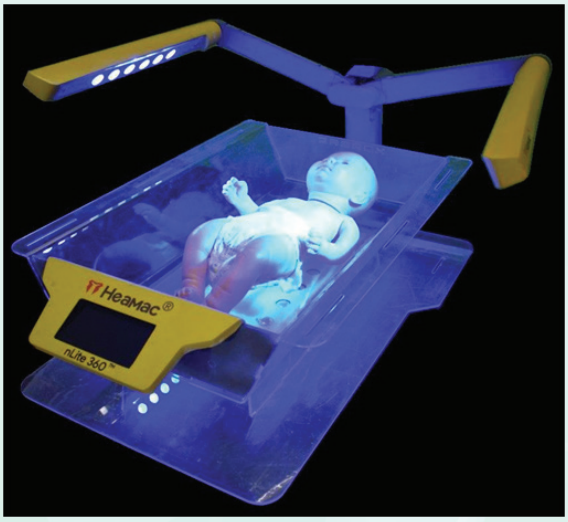
Akitha Kolloju

AkithaKolloju is the chief technology officer of Heamac. She attended the Indian Institute of Technology, Hyderabad. She previously worked as Knowledge Scientist at SciTech Patent Art Services.

The entrepreneurial journey of her team started in IIT Hyderabad at CfHE, where both the funders AkithaKolloju and Prasad Muddam attended for the Bio-design fellowship. With their understanding of the current unmet needs in the healthcare sector and after a keen observation of three month during the clinical immersion, they decided to develop solutions to treat new-born jaundice, which is one of the most unmet and neglected needs.

Product/Technology

nLite360™ is an intelligent prolotherapy device which has the capability to save the new born from dynamic jaundice conditions. In India alone 15 million babies are suffering from jaundice and globally 70 million babies are either suffering from morbidity or mortality. This solution has the potential to treat the baby in any resource constrained environment withstanding robust conditions by ensuring affordable effective treatment at the mother's side.



Stage of development

Validation

IP status:

2 Patents Filed

Other Achievements:

- BIRAC Women in Entrepreneurial and Research (WInER) Award.
- Best early-stages tartup at IKMC 2019 organized by IKP.
- HCP Excellence award at the Healthcare Product summit 2020.
- DMA, All India Women Entrepreneurs award in the Healthcare sector
- top 5 finalists of the DivHERsity award
- Top 5 winners at the Bio Asia Conference 2020.
- top 5 nominees of the Lexus Design Award.
- one of the 23 selected startups for the Cohort 2 of We Hub
- Investments received: IT Hyderabad CfHE Incubation fund, BIG Birac Grant, IIM Calcutta PRIF Fund, BiracSbiri Grant

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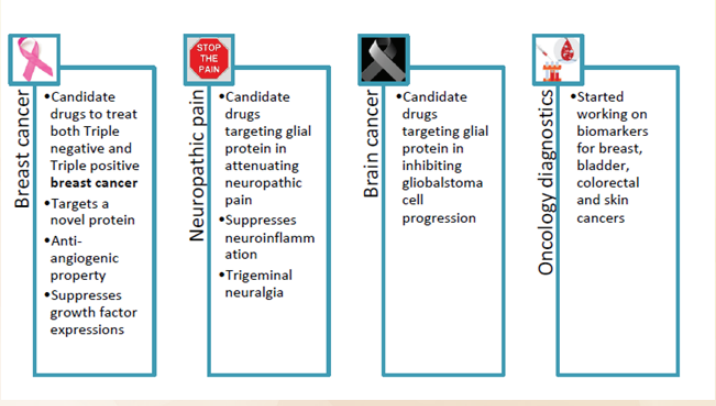
Yogee's Bioinnovations Pvt Ltd

Yogeeswari Perumal

Yogeeswari Perumal is the founder of Yogee's Bio innovations Private Limited. She is presently working in the capacity of Professor, Department of Pharmacy, Birla Institute of Technology and Science, Pilani, Hyderabad Campus. She conceptualized and launched a start-up as aspin-off of their drug discovery lab in the Institute which is currently incubated at the Technology Business Incubator of BITS-Pilani, Hyderabad campus. Yogee's Bioinnovations Private Limited currently has Indian and International Patent applications. It is evident that, early detection of cancer is the key to save lives of millions of people. To save these lives they started work in gonearly detection methods of cancer. After years of research, they came across a set of novel biomarkers through whichthey detect 6 different kinds of cancer at different stages. The project named as "iCanO", is to detect cancer non- invasively saliva. They are developing a cheap, portable, efficient and user-friendly oral cancer detection device (iCan OmeaningIcan Know). Dr Perumal believes that BIRAC has provided her with the funds and visibility to take her innovation forward.

Product/Technology:

The company has developed three products for breast cancer therapeutics for triple negative breast cancer (US patent granted), high quality real sweet lime fruit juice powder (JuiC) retaining 99% of the fruit content with no added chemicals or preservatives and a simple non-invasive (saliva based) diagnosis of 5 different cancers (iCanO). Currently, the company has 3 Indian Patent applications and 6 International Patent applications.



Stage of development:

Validation

Impact:

The company has developed three technologies for non-invasive cancer diagnosis (iCanO), real fruit nutrition product based on citrus fruit (JuiC) and the therapeutic product with preclinical proof of efficacy for breast cancers. This would create a major breakthrough in Cancer awareness, prevention and treatment.

IP status:

3 Indian Patents filed and 6 International patents filed out of which 1 US patent granted in 2021.

Other Achievements:

- TiE-BIRAC Winer Award 2019 for Women in Entrepreneurial Research received
- Best Paper Award in the Category of Food Research Jan 2019-at the International Conference on Biotechnological Innovations in Food and Healthcare, 27-28 January 2019, Dubai, UAE.
- Investments received: BIG seed fund
- One among eminent Innovator across the country invited by the President of India for the Visitor's Award function and Dinner along with grassroots innovators held on 6th March 2017 at RashtrapatiBhavan Cultural Centre.
- Received i3 Gold Award for Best Innovator of the year 2016 at the 8th India Innovation Initiative conducted by CII, DST, AICTE and Yi at New Delhi, 18-19th Oct 2016.
- Awarded the Best Drug Discovery Innovation for the start-up idea at the International Knowledge Millennium Conference 2015 (IKMC2015): Spreading the Innovation Spirit at Hyderabad, 2-3 Nov 2015.

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PhotoSpIMeDx

PhotoSpIMeDx Pvt Ltd

www.photospimedx.com

Shikha Ahirwar

An engineer and researcher by profession and worked diligently on device development projects for cervical cancer diagnostics. Presently working as Cofounder and Director of PhotoSpIMeDx Pvt ltd, a MedTech firm incorporating Biophotonics technology to create an affordable, accessible, accurate, and minimally invasive diagnostics device.

Product/Technology:

Smartphone based cervical cancer detection device - A smartphone-based fluorescence spectroscopic device that is compact, portable, cost-effective, accessible, minimally invasive, and user-friendly has been developed. Using fluorescence spectroscopy, the technology will be able to identify the biochemical changes that occur during the progression of cancer. Aim to use the technology as a regular biopsy guidance tool for the early diagnosis of cervical cancer in hospitals and clinics.

Stage of development:

Validation phase - At GSVM Medical College Kanpur and AIIMS Bhubaneswar

Impact :

According to WHO data, the cervical cancer scenario in India is alarming. There is a demand for technologies that are inexpensive, easily accessible, accurate, and less invasive. If this device is made available on the Indian market, it will satisfy the rising demand for medical devices and close the gap in providing better health care to remote areas of the country.

IP status:

1 Patent application filed

Other achievements:

- Received Grant from BIG, BIRAC, India.

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Bylin Medtech Pvt. Ltd.
www.bylinmedtech.com

Lini Basil

Lini Basil a practising dental surgeon, understand the mind set of patients and the practitioner. But the hard work, dedication and strategies behind each medical product that wise handled us understood through this journey. Identified as one of the prospective woman entrepreneurs by Kerala Start-up Mission. Collaborationand networking with industry experts have given a different outlook and understanding in problem solving. Business studies along with the regulatory pathway discovery for a good product development is the highlight of this journey.

Product/Technology

DrizlinOral Patch is an innovative bio-patch which can be placed inside oral cavity to provide continuous hydration of the mouth in extreme dry mouth patients.It has 3 layers- an adhesive layer, an active layer & supporting layer. Drizlinpatch with no added drugs, sugars or preservatives absorbs the drinking water taken by the patient& slowly releases upon tongue pressure or masticatory movements, thereby wetting the mouth. The patch can give wetness for 3-4 hours continuously. The biomaterials that are used has inherent wound healing ability & anti-microbial properties which provides protection against opportunistic infections which are very common with xerostomia. The animal studies for skin sensitisation, irritation, cytotoxicity & tests on human epithelial cells done in SCTIMST has labelled Drizlin patch to be safe.

Stage of Development:

Clinical trials batch manufacturing started and Hospitals identified for trial.

Impact :

Xerostomia is a debilitating condition that occurs due to radiation for head and neck cancers, polypharmacy and auto immune disorders. This is a first of its kind innovation and will be the first product for xerostomia which has inherent antimicrobial activities against opportunistic infections of oral cavity. This product addresses the problems faced by many critically ill patients whose quality of life is affected because of this condition.

IPStatus:

Indian patent granted

Other achievements:

- Md 13 license granted and product is classified as class a medical device
- Best Innovation Award in oral health care innovation conference at AIIMS, New Delhi.
- Funded by BIRAC as a SPARSH SIIP fellow and BIG Grant
- Received Innovator Grant through Nidhi Prayas, DST
- Considered under BIRAC SBIRI grant to conduct the clinical trials.

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SOILSENS

Proximal Soilsens Technologies Pvt. Ltd.
www.soilsens.com

Rajul Patkar

As a part of research group, they are developing various sensors and system for precision agriculture and work on low cost technologies for point of care diagnostics in agriculture.

Product/Technology

Soilsens have indigenously built smart moisture meters (SoilSens Station and SoilSens Go) for precise irrigation and a palm-size glucometer-like device called NutriSens for precise, instant and rapid measurement of onsite soil health (nutrients, pH, EC) analysis. These devices send the soil data to the cloud in real-time. Their decision support platform helps in making the right decisions. With the help of the dashboard and mobile apps, the farmer instantly gets the soil health info and recommendation about precise water and fertilizer usage. Their technologies are affordable without compromising on quality

Stage of development:

Under commercialization stage

Impact :

Rough calculations suggest agricultural household spend on fertiliser/manure is in the range of Rs 78,000-1,20,000 crore. Adding the fertilizer subsidy bill, amounts to around 1.7% of India's consumption expenditure. This will have a direct bearing on around 10% of GDP (value added by crops). By reducing the fertilizer usage by 6%, there is a huge saving possible both by Govt and farmers. India uses 2 to 4 times more water than China or Brazil per unit of crop production. Adopting technologies to conserve water will save billions of litres of water.

IP status

Patent Filed.

Other Achievements:

- Considered as one of the women warriors of Indian agriculture in Agriculture Today.
- Invited by Embassy of Netherland and FICCI to deliver a talk on gender equality in agriculture
- Developed a product that can reduce soil health analysis time by 4000 times at a fraction of the cost. Need no skills, infrastructure, or electricity to operate.
- Partnered with companies like CISCO, and Murata for bringing innovative technologies to agriculture.
- Grants received from BIRAC-SPARSH, Millennium-FICCI, Atal Innovation, Nidhi Prayas)

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PRAGMATECH SOLUTIONS

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www.pragmatech.co.in

Sayantani Pramanik

After spending 5+ years in the Bio-Pharma Sector, she has taken a leap to Co-found Pragmatech Healthcare Solutions Pvt Ltd. with a vision to develop affordable healthcare solutions addressing the local challanges faced in Indial and other LMI country

Product/Technology:

Cervical cancer kills 1 woman every 8 minutes in India owing to the low adoption and access to periodic cervical cancer and vaginal health screening. The CERVICHECKTM is a combination of self-sampling that empowers a woman to be ATMANIRBHAR in collecting her cervical sample from the privacy and convenience of her bedroom, along with a POC screening assay that identifies high risk women at a treatable point without any ambiguity. The innovation removes the pertinent barriers leading to low adoption and access to periodic cervical cancer and over-all vaginal health screening, and encourages more women to take charge of their cervical health without any inhibitions.

Stage of development:

Validation - CERVICHECKTMis currently in a DCGI approved clinical evaluation phase; while the POC screening assay is under development.

Impact:

India alone accounts for one-quarter of the worldwide burden of Cervical cancers, accounting for 17% of all cancer deaths among women aged between 30-69 years. Success of a large-scale screening program extensively depends on an India-centric approach where the local barriers for adoptionare overcome by the CERVICHECK™ Self Sampling kit.Simultaneously, an early detection of Cervical cancer, at a pre-cancerous stage will allow treatment through a simple cost-efficient procedure such ascryo/thermal-ablation, as against the costly treatment of cancer.

IP status:

Received the design and utility patent. For the POC screening assay, in the process of filing a provisional

Other achievements:

- Recipient of NIDHI Prayas'21, INDUS CSR Entrepreneurship Fellowship'21, HDFC Smart-Up CSR Grant'22. Featured in YourStory; Winner of Popularity Award at AIM (Atal Innovation Mission) PRIME Demo-day with investors.
- BIRAC SEED FUND in 2020
- Winner of SWISSNEX AIT'20, AAGS'21 and Stanford Seed Spark'21, and recipient BIRAC BIG – 19.

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Arboreal Bioinnovations Pvt Ltd

www.arborealstevia.com
www.magicleafstore.com

Swati Pandey

Swati Pandey is the CEO and Co-Founder of Arboreal Bio Innovation and award winnig plant based out of India. The company was started with a vision to accelerate the world's transition to a past sugar world and has been focused on developing manufacture and marketing plant based, healthy sugar alternatives to the food and beverage industry globally.

Product/technology:

The Company aims to help food and beverage companies make their products healthier by reducing/removing added Sugar in them, using their proprietary Zero calorie Sugar reduction solutions comprised of natural Stevia extracts, polyols and plant fibers. Solutions are unique as they are made from 100% natural and safe ingredients, and they don't just mimic the sweetness of Sugar, but also its mouthfeel and texturizing properties

Stage of development:

Commercialised- Selling solutions to more than 170 companies globally and reached around 10 lakh consumers worldwide.

Impact:

Diabetes and obesity have assumed epidemic proportions worldwide, with India now being classified as the 'Diabetes Capital of the world'. Developed solutions help food and beverage companies reduce added Sugars (and empty calories) in their products without having to compromise on cost or taste - this creates a win-win solution for companies as well as the consumers.

IP status:

Filed 1 patent and in the process of filing other patents

Other Achievments :

- Raised USD 3.5M so far from private institutional funds and angel investors
- Arboreal was announced as the winner of National Startup Awards 2021
- Awarded the Women Transforming India 2021 award by the NitiAyog (GoI) and UN
- Arboreal was adjudged as the top venture in Asia-pacific (out of 2900+ high quality startups globally) by Mckinsey, INSEAD and Cartier at Cartier Women's Initiative Award, 2018 in Singapore.
- Awarded the FICCI-Flo Game changer award in 2021 by FICCI.

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OKO ICARE SOLUTIONS
innovations that care.....

OKO ICARE Solutions Pvt. Ltd.
www.okoicaresolutions.com

Neha Lande

After visiting Glaucoma screening campas in the tribal areas of Maharashtra and experiencing the problems of the ground roots, Neha Lande decided to develop a self screening Glaucoma monitoring device that can be used for early screening before the substantial use of vision. The journey started in 2019, via the startup. OKO ICare offering an affordable monitoring solutions

Product/technology:

Accuway™(A portable trans-eyelid tonometer) promise to greatly reduce the skill level, time and cost involved in glaucoma screening. It is placed over the eyelid and takes only few seconds to detect the level of IOP. 24 hours non-stop IOP monitoring outside and inside clinic for Glaucoma patients and suspects, highly recommended not only for ophthalmologists but also for health workers in urban and rural sector where preliminary screening is must. Elimination of pain during eye examination without the need for local anaesthetics. Prevention of possible bacterial or viral infection that may arise from direct contact with the cornea during a traditional tonometry. Ability to measure the intraocular pressure despite possible presence of other eye conditions, such as conjunctivitis, corneal oedema, and corneal erosions. Accurate measure of IOP that is closer to the real intraocular pressure of patients with Goldmann tonometer.

Stage of development:

- Testing and validation completed

Impact :

The device can detect glaucoma exactly at the moment before severe damage or permanent vision loss, as a results therapy can be initiated to prevent its progression. 70% of glaucoma affect individual above age 40 years live in rural area withlimited resources facility of diagnosis, an early diagnosis will aid improvement in rural health.

IP status:

- 2 patents filed and one granted

Other achievements:

- Appreciated by Hon. Health Minister at Maha-arogya and Raktadan shibir organized by District Health Administration, Bhandara
- Received Dr. Albert Swizler international Health Award
- Resource Person at Visveswaraya National Institute of Technology, Nagpur
- BIRAC BIG grant
- Highlights of entrepreneurial journey: Received BIRAC grant, ready to launch in market.

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Atrimed Biotech LLP
www.atrimedbiotech.com

Latha Damle

The Company was established in 2016 in Bangalore, India by two women entrepreneurs (One is highly experienced physician with extensive knowledge of pharmacology and plant chemistry; Other one is biotechnologist with in-depth knowledge of immunology. Incubated at Bangalore Bio innovation Centre, Bangalore since 2017 . Launched products within 5 years of inception with select products registered with USFDA. Other achievements: Received All India Women's Entrepreneur Award from DMA, 2020

Product/Technology

SORION is polyherbal topical OTC cream with mixture of Coconut Oil and rare, exotic plants like Neem, Turmeric, Common Madder and Pala Indigo to treat psoriasis. The ingredients in this formulation are GRAS (Generally Recognized as Safe) status, according to U.S. standards. Sorion has been tested and approved by The German Psoriasis Network.

VYVUZ is a polyherbal oral OTC capsule with a mixture of Mandookaparni, Bhunimba, Ashwagandha and others demonstrating a virucidal activityto treat COVID-19 infection. Tested at RCB, DST, Faridabad. It has also been tested in Phase 1 and Phase 2 clinical trials under CTRI. When taken along with SOC, it can hasten recovery in COVID-19 patients with moderate symptoms of COVID-19.

Stage of development:

Both Products Are Commercialised

Impact :

SORION: Approx. 100-125 million people are affected by psoriasis and even more individuals fall to its associated co-morbidities worldwide. Sorion is more effective, affordable in third world countries, safe and easier and cheaper to manufacture on a large scale.

VYVUZ: The COVID-19 pandemic has already caused millions of deaths, many preventable. Vyvuz is safe, inexpensive and can be used to treat moderate COVID-19 symptoms to hasten recovery of patients and prevent development of severe symptoms when taken along with SOC.

IP status:

Trademarked

Investments received:

- Received ELEVATE 100 Grant in 2017 and BIRAC BIG Grant
- Received BIRAC COVID-19 Botanicals Grant in 2020

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Genext Genomics Pvt. Ltd.
www.genextgenomics.com

Supriya Kashikar

Dr. Supriya Kashikar's Founder and CEO of Genext Genomics, has graduated from Delhi University in Microbiology and earned Post graduation in Biochemical Technology. She brings with her more than 14 years of academia and Industrial Experience. She has worked in various academia and Industry. She worked on various international project of Drug discovery, assay development at Jubilant Biosys Pvt Ltd.

At GNG, she is Chief Executive Officer,where she is nurturing company in the field of delivering effective solution to the scientific problem. She added value to the company by grabbing BIG award and successfully leading her work in tuberculosis. She also serves as CO-PI for an INDO-FRENCH collaborative project along with University of Bordeaux, VIT and SPAN SRL for development of prognostic diagnostic of CVD. She has also been awarded Women in Entrepeneural Research (WInER) award by BIRAC and TiE in March 2018.

Product/Technology:

Currently, company has portfolio of proteins and antibodies which is commercialized in RUO (Research Use Only) and has Indian distributors as well as international distributers and OEM partners. GENEXT with its expertise has diversified its development of Antibody of Diagnostic and therapeutic importance. Under its product portfolio, Genext has following commercialized products:

1. Novel Theileriosis Detection Kit in Cattle (POC)
2. TB detection kit in Animal (POC)
3. GMO detection in plant

Following technologies have been developed:

1. Golimumab Biosimilar Clone for therapeutic
2. Human Antibody Library for drug discovery

Stage of development:

3 products have been commercialized, one is under validation and one other is under development

IP status

4 patents filed

Impact:

The RUO proteins and antibodies are now import substitute. Rough calculations suggest agricultural household spend on fertiliser/manure is in the range of Rs 78,000-1,20,000 crore. Adding the fertilizer subsidy bill, amounts to around 1.7% of India's consumption expenditure. This will have a direct bearing on around 10% of GDP (value added by crops). By reducing the fertilizer usage by 6%, there is a huge saving possible both by Govt and farmers. India uses 2 to 4 times more water than China or Brazil per unit of crop production. Adopting technologies to conserve water will save billions of litres of water.

Other Achievements:

- Considered as one of the women warriors of Indian agriculture in Agriculture Today
- Invited by Embassy of Netherland and FICCI to deliver a talk on gender equality in agriculture
- Developed a product that can reduce soil health analysis time by 4000 times at a fraction of the cost. Need no skills, infrastructure, or electricity to operate
- Partnered with companies like CISCO, and Murata for bringing innovative technologies to agriculture

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CisGEN Biotech Discoveries Pvt. Ltd.
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V. Maroudam

Dr. V.Maroudam started her carrier as Manager in R&D, Indian Immunologicals Ltd., Hyderabad from 2002 to 2012. Then she worked as Scientist in Translational Research Platform for Veterinary Biologicals, TANUVAS, Chennai between the period 2012 and 2017. She founded the CisGEN in the year 2017 and commercialised three patented animal health care products with support of BIRAC, DBT, GoI. The Company was created from the output of BIGof BIRAC, DBT and are incubated in IITM Research Park, Chennai since October 2017. CisGEN is actively involved in the R&D of veterinary health products with the focus on providing novel solutions to animal health issues which include development of novel bio-therapeutic molecules against the infectious diseases of pets, aquaculture and livestock, development of pen-side diagnostic kits and antibody assay kits for the infectious diseases of pets and livestock. They are also offering diagnostic services for livestock and pet diseases through its in-house developed/ optimised test methods.

Product/Technology:

CowVuwartificial insemination device:CowVuwvideo AI device, novel patented device for real-time video assistance during artificial insemination in dairy cattle with direct visualization, combined with user-friendly data retrievable video app.It will help the field operator to exactly deposit the semen inside uterine horns by viewing the miniature white LED lit camera. An app is also installed in operator's mobile to collect the data and monitor the animal's reproductive data. The device will overcome the limitation of conventional AI technology and make this powerful technique a real boon for increasing the productivity of milch animals which is necessary for the wellbeing of the poor farmers in the country.

Stage of development:

Pre-commercialization

Impact :

The technology will help the social upliftment of rural poor and in particular the rural women. Because rural women are playing major role in livestock rearing through backyard system and showing significant economic contribution to India which remains unnoticed. The product validation data indicated that the conception rate had improved by 10% using Smart Easy AI device compared to the conventional method of AI. Increase in conception rate makes huge impact on the rural economy. Using the device, the ideal economic objective of breeding programs which aims at one calf per cow per year can be achieved. The device will boost entire Indian dairy sector, boosts the livestock rearing women to increase their farm productivity and also increase the overall fertility percentage of the Indian dairy sector.

IP status:

Device and system Patent filed and Design patent granted

Other Achievements:

- Received runner up award under the category of Breed Improvement & Animal Nutrition from Startup I India-Animal Husbandry Grand Challenge on 09.05.2020 for Cowvuw device.
- Women achievers award from Delhi Management Association 2021
- Winner of SWISSNEX AIT'20, AAGS'21 and Stanford Seed Spark'21, and recipient BIRAC BIG – 19.
- BIG and SBIRI Grant received

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Panaceja Biotherapeutics Pvt Ltd

Next generation therapeutics for diagnosis and therapy

Valluri V Satyavathi

Valluri is the founder of Panaceja Biotherapeutics Pvt. Ltd. Dr. Satyavathi started a company Panaceja Biotherapeutics Pvt Ltd in collaboration with her colleague Dr. Kommineni with amission to translate their power and potential of 20 years research experience into practice for the benefit of society.

Product/Technology:

Dr Satyavathi and team are using plants as factories for the production of expensive therapeutics on a rapid, scalable and economical platform. The viral replicon directs the production of large amounts of target protein in plant tissues within two months at half the cost.

This technology is applicable to many other proteins like monoclonal antibodies, vaccines like anti-Ebola and diagnostic proteins. Dr. Satyavathi is grateful to BIRAC-TiE for the woman entrepreneurial research award that helped her get incubated at BioNEST University of Hyderabad.

They have developed a platform technology for production of therapeutic recombinant proteins in a rapid scalable and cost affordable manner.

Stage of development:

At Proof of Concept Stage

Impact :

The selling price of monoclonal antibody trastuzumab is Rs 60,000 for 440 mg. Using plant-based system, the protein can be produced at half its price within weeks' time, unlike current technologies which takes up to 12 months.

Other Achievements:

- TiE - BIRAC WInER Award for Women
- Investments received: Rs. 5 lakhs

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Duosis Bio-innovations Pvt. Ltd.

www.duosisbio.com

RUBY GUPTA

Ruby started her journey from SIIC-IIT Kanpur with NIDHI-EIR fellowship in 2018. In the year 2019, Duosis received funding from BIRAC-BIG and Atal Bihari Vajpayee Innovation Lab (Start-up Jharkhand) for scaling up the entrepreneurial activities. Noe, the company is incubated in CSIR-CFTRI, Mysore for its pilot scale studies.

Product/Technology:

India is the world's largest producer of tamarind (Tamarindus Indica) with an annual production of about 2 lakh metric tons. However, large chunk of forest produce is moving out of the forest villages in raw form and traded without any value addition. Tamarind kernel powder obtained from tamarind seeds has important industrial applications. Similarity of tamarind hydrocolloid with commercial pectin depicts that it can be a potential source of novel hydrocolloids together with diverse industrial applications. Their product is known as Jellnex. With Jellnex, the aim is to develop an affordable solution to minimize pectin import in India. Pectin is the most widely used gelling agent by FMCG industries. It has better rheological properties, higher stability at a wide range of pH, heat resistant, tasteless and 0.5X cheaper.

Stage of development:

Validation stage

Impact:

Apart from business envisaged, it will have social aspect as well, the value chain is going to impact many lives of tribal populations and will increase their earning potential. Duosis will train & assist all stakeholders to enhance their competence and efficiency at each level through establishing simple post-harvest technologies for collection & processing of tamarind.

As of now large chunk of forest produce in Jharkhand is moving out of the forest villages in raw form and traded without any value addition. Therefore, this initiative will provide an alternative livelihood option and will eventually enhance the socio-economic status of local communities.

Processing of tamarind seeds will add value to this produce and can fetch higher price to the community involved in this trade. Consequently, capacity building and business development will generate gainful employment and revenue in the State of Jharkhand.

Other Achievements:

- NIDHI-EIR Fellowship
- BIRAC-Biotechnology Ignition Grant
- Atal Bihari Vajpayee Innovation Lab (Start-up Jharkhand funding)
- BIRAC-TiEWInER Award
- Manage SamunnatiAgro Start-up Award
- MCX CSR funding

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