

brew



Strictly Confidential
June 2022



Presentation

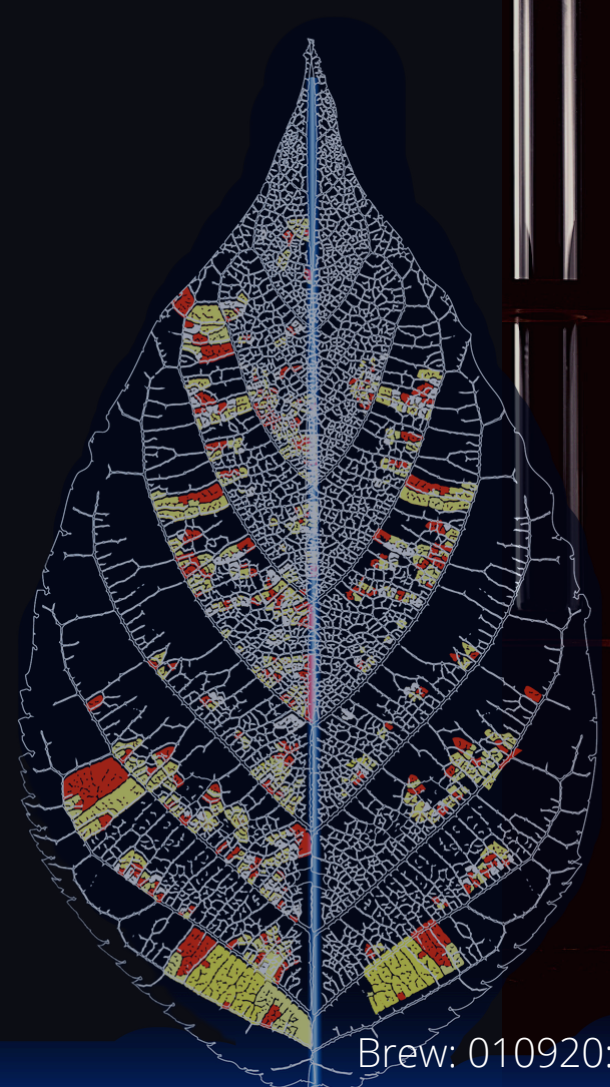
1. Overview
2. Background
3. Problem Statement
4. Proposed solution
5. Mission
6. Vision
7. Path to innovation





Overview

- Elevator Pitch
- Background
- Problem Statement
- Proposed solution
- Mission
- Vision
- Path to innovation



Elevator Pitch

Brew proposes to
redefine
preventive medicine
through cutting edge
technologies,
innovative delivery
mechanisms and
multiple concurrent
antibody production
pathways .

To make prophylactics
affordable, safe and
mass deployable

To administer them
ONLY to those who
need them



IIT Alumni
Council C19 Task
Force conceived
of the MegaLab
initiative in
March 2020 as
part of the
MegaSpheres
platform

Brew is a
consortium
member of the
MegaLab initiative
and is partly
funded from social
and philanthropic
funds





Current members of the MegaLab family include:



Hospital & research



Digital Replica



Infectious disease prevention



Autonomous devices

KOTELEO

Epharmacy



Lifestyle disease reversal



Natural extracts

Problem



Disease degrades quality of life besides cutting it short. It also entails significant direct and even larger indirect costs because of loss of productivity and independence.

Prevention is superior to cure and is the key to healthy and active longevity.

But, curing sickness is more profitable than preventing it. As a result, there is a misalignment of incentives, leading to low investments in preventive medicine.

Indicators



Making prudent investments in global health will not only dramatically improve people's quality of life, it's a \$12 trillion economic opportunity

according to new research by the McKinsey Global Institute.

The Covid-19 pandemic has demonstrated that rapid transformation of our healthcare architecture is not just possible, but practically achievable.

Solution



Prevention of disease requires a two pronged approach – enhancement of immunity and production of effective antibodies in adequate concentration.

This is proposed to be achieved by:
a multimodal multidose delivery,
of safe and affordable,
naturally occurring peptides &
antibody-producing prophylactics
but only to those who need them
and only when they need them

Vision

Our vision is to redefine the paradigms of preventive medicine by creating ecosystems and collaborative cutting edge prophylactic technologies, supplement them with ancient wisdom, antibody cocktails and AI-based protein discovery paradigms - to deliver efficacious and ethical prophylactic solutions that significantly improve quality of life and healthy longevity.



Mission

To impact on discovery and innovation in preventive medicine.

To create innovative collaborations of modern allopathic technologies and Ayurvedic sciences.

To create ecosystems for improved delivery mechanisms – possibly micro needle nano patches.

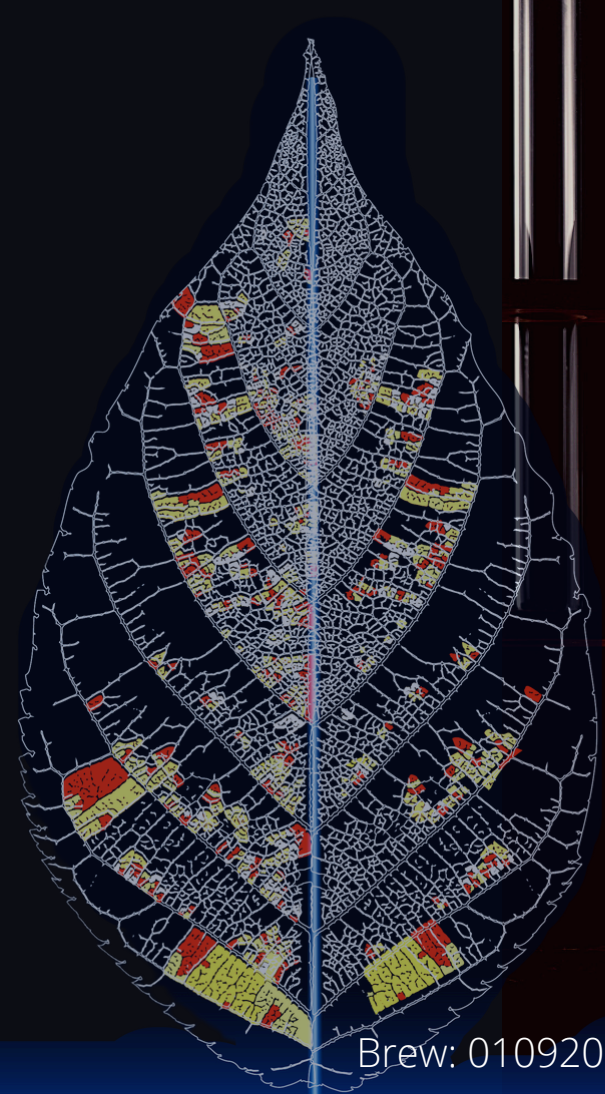
To bring down costs and re-balance the preventive and curative streams.





Unique Selling Proposition

- Virus free vaccines
- Digital trials
- Multi pronged
- Cold chain avoidance
- cGMP facilities
- Micro dosing
- Vegan proteomics



Virus free

In some cases, virus based vaccines could account for serious adverse effects in a tangible proportion of recipients.

Brew will distribute prophylactics which do not use live or deactivated viruses.

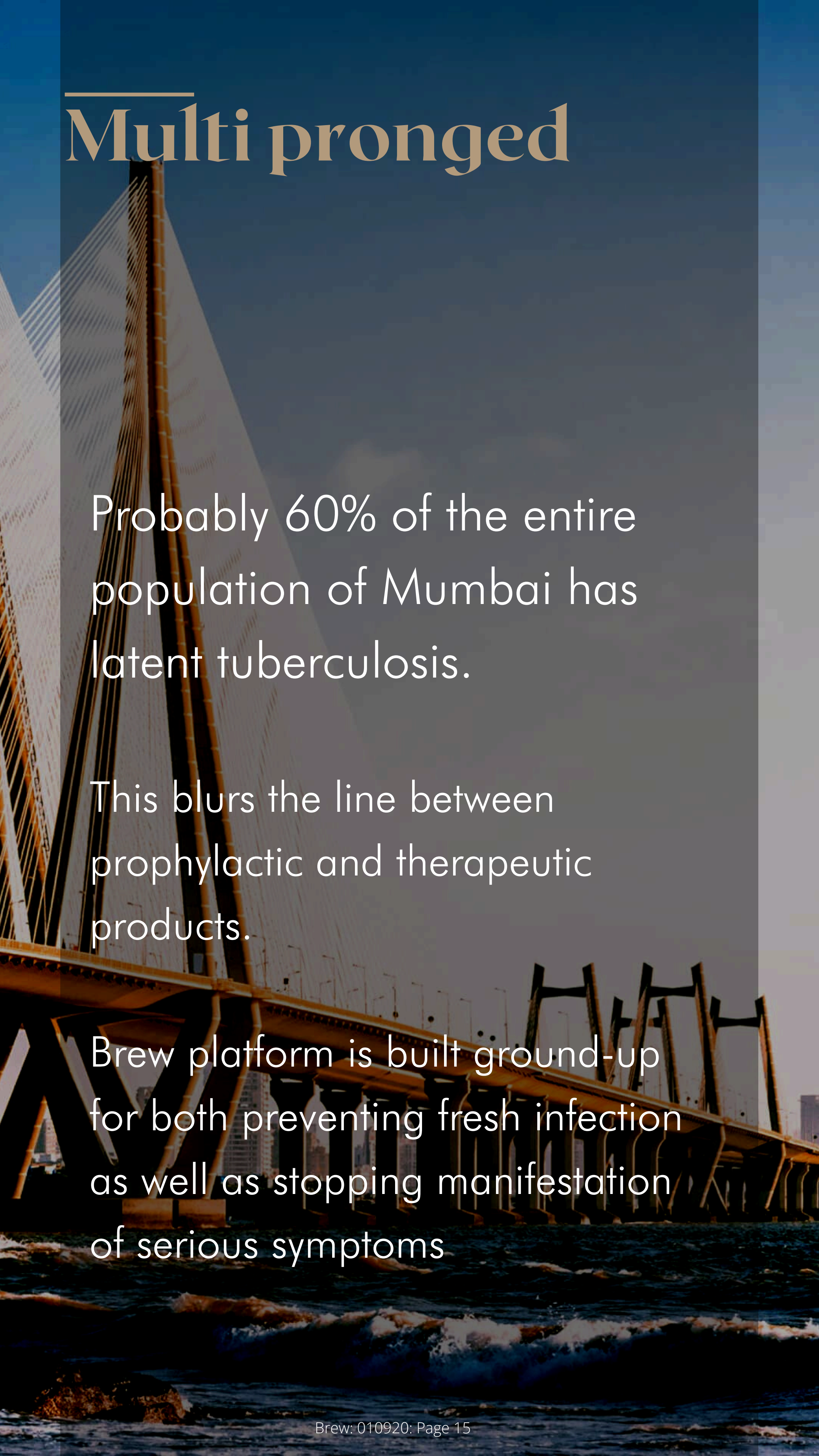


Digital Trials

The background of the slide is a blue-tinted image. On the left, there is a profile of a person's face. On the right, there is a digital wireframe mesh of a human head. A hand is reaching towards the mesh, symbolizing the interaction between the physical and digital worlds in clinical trials.

Brew proposes to use digital replicas of human beings for initial clinical trials. This approach facilitates speedy yet low cost trials with a large number of patients.

Multi pronged

A photograph of a cable-stayed bridge, likely the Bandra-Worli Sea Link in Mumbai, India, spanning the Arabian Sea. The bridge features a tall, white pylon with numerous stay cables. The sky is a deep blue, and the water below shows white-capped waves. The bridge's structure is illuminated, and the city skyline is visible in the background.

Probably 60% of the entire population of Mumbai has latent tuberculosis.

This blurs the line between prophylactic and therapeutic products.

Brew platform is built ground-up for both preventing fresh infection as well as stopping manifestation of serious symptoms

Cold Chain

Modern biopharmaceutical products are delicate and need a robust cold chain.

They are thus stored in extreme cold conditions, sometimes needing -80 degC for storage. This makes them impractical for widespread use in emerging markets.

By using alternate liposome nanoparticles from plant sources, it is proposed to lyophilise these vaccines. This eliminates the need for a cold chain.

Enhanced Safety

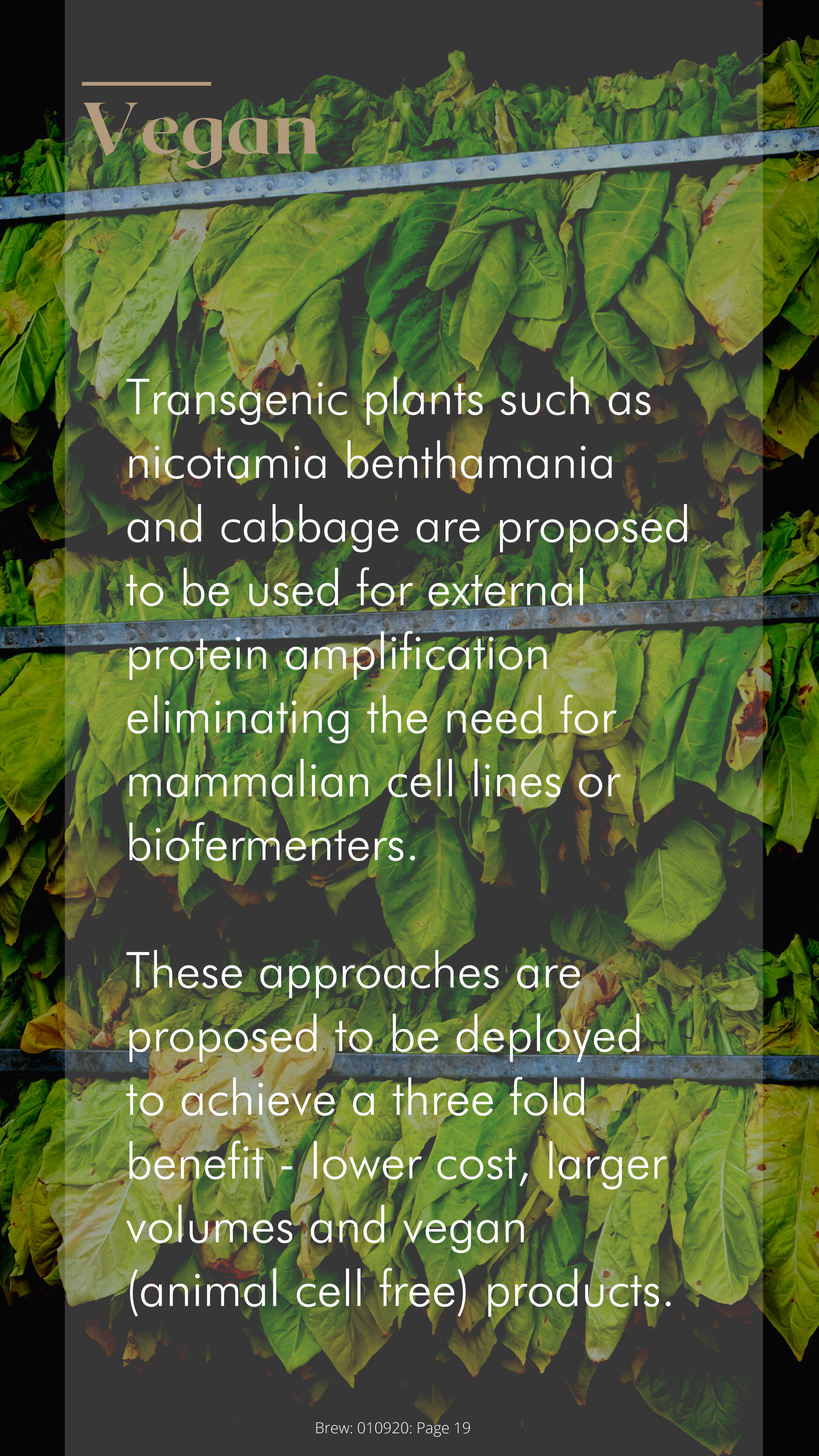
Brew products are proposed to be manufactured in cGMP approved facilities for global distribution from India.

Brew has extensive linkages with research organisations, testing laboratories, process developers and contract manufacturers.

Micro dosing

Controlled self amplification of the vaccine within the human cells can radically alter the price performance of many prophylactics including vaccines.

Not only are smaller quantities of the diagnostic kits and prophylactic required, innovative "patient administered" delivery mechanisms such as smart transdermal patches can be used in place of injectables.

The background of the slide is a photograph of tobacco leaves hanging on a metal rack. The leaves are green and appear to be in the process of being cured. The metal rack is made of horizontal bars with small circular fasteners. The overall tone of the image is somewhat dark and industrial.

Vegan

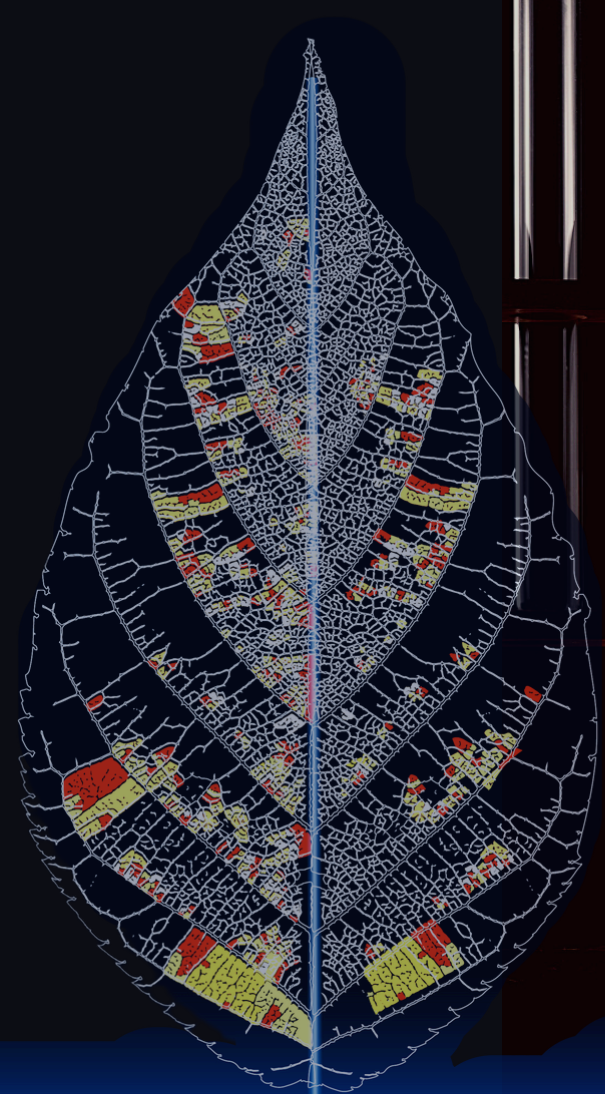
Transgenic plants such as *Nicotiana benthamiana* and cabbage are proposed to be used for external protein amplification eliminating the need for mammalian cell lines or biofermenters.

These approaches are proposed to be deployed to achieve a three fold benefit - lower cost, larger volumes and vegan (animal cell free) products.



3. Products

- mRNA vaccines
- How do mRNA vaccines work
- Protein vaccines, how do they work
- Benefit of protein vaccines
- Ayurveda vaccines
- How will they work
- Antibody cocktails



mRNA

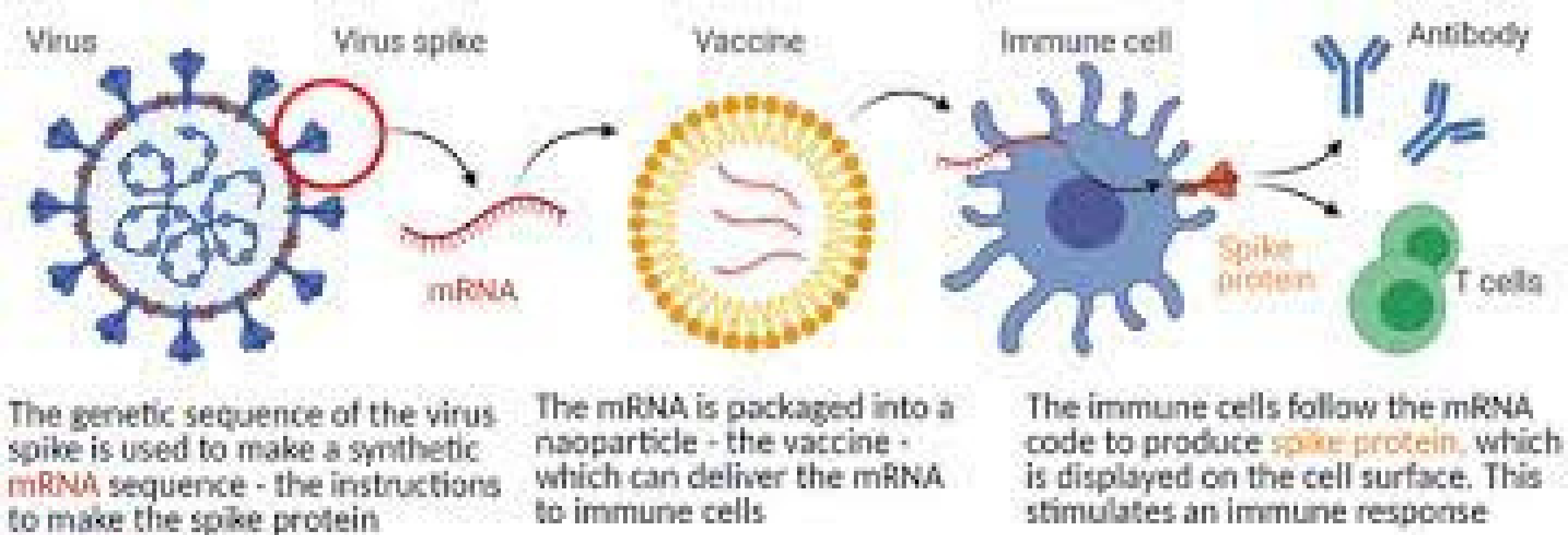


mRNA type vaccines form the basic foundation of the Brew vaccine platform.

mRNA based prophylactics and injectable therapeutics have the potential to prevent or to treat a wide variety of infectious diseases.

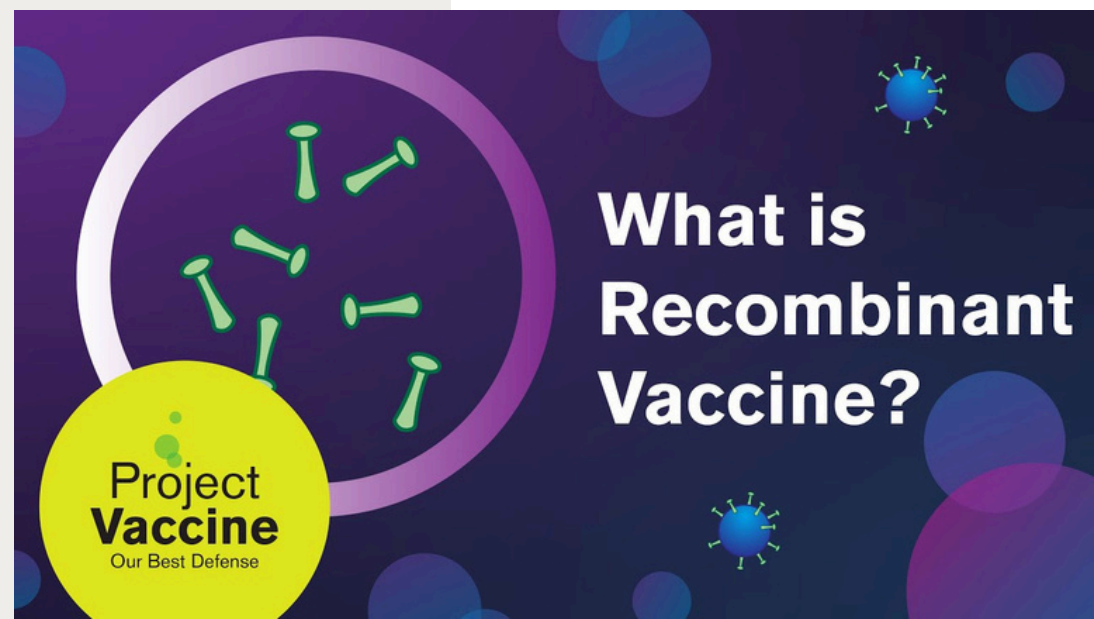
The mRNA platform with suitable adjuvants can address bacterial, viral and parasitic infections.

How mRNA vaccines work



Traditional vaccines work by giving a person either viral proteins or an inactivated or weakened version of a virus that triggers an immune response. mRNA vaccines do not contain viral material. Instead, these vaccines contain lipid or fat bubbles that surround a segment of mRNA, which provide cells with the instructions to make a certain viral protein.

Protein



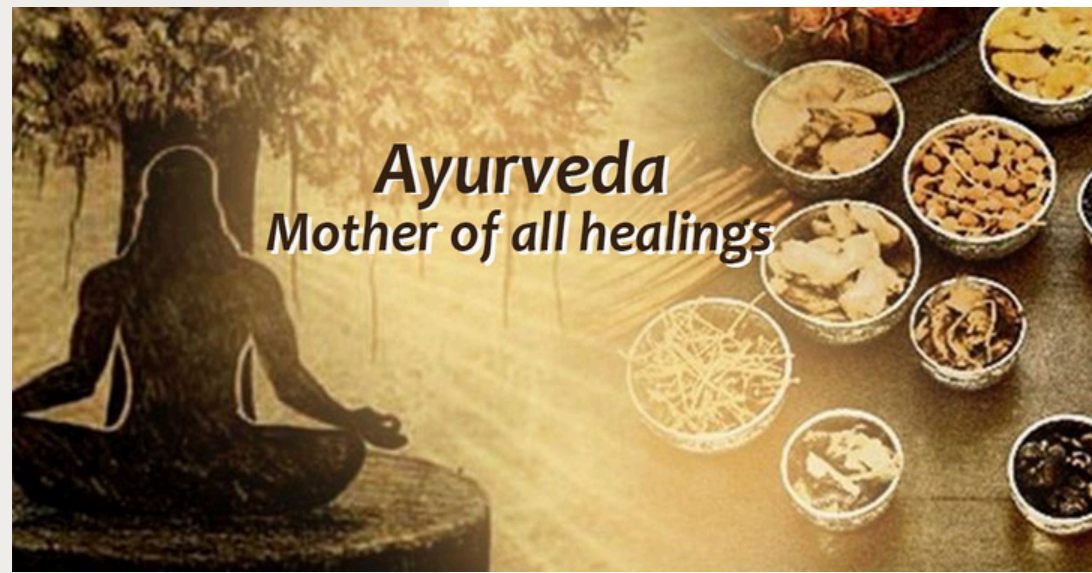
Brew's protein based subunit vaccines present an antigen to the immune system using a specific, isolated protein - similar to that in a pathogen.

The protein vaccines can target the receptor binding domain of the pathogen as well as other areas of the virus.



Because the vaccine does not contain the virus, there is no risk of introducing the diseases or triggering disease-like symptoms in the recipient. Thus these vaccines can also be used on immuno compromised patients for whom vaccines could pose a serious health hazard.

Ayurveda



Ayurveda has identified a wide range of naturally occurring bio molecules, phospho lipids, adjuvants and immunity boosters.

The concept of injectables is alien to the science of ayurveda. However transdermal delivery is a very well evolved concept in ayurveda.



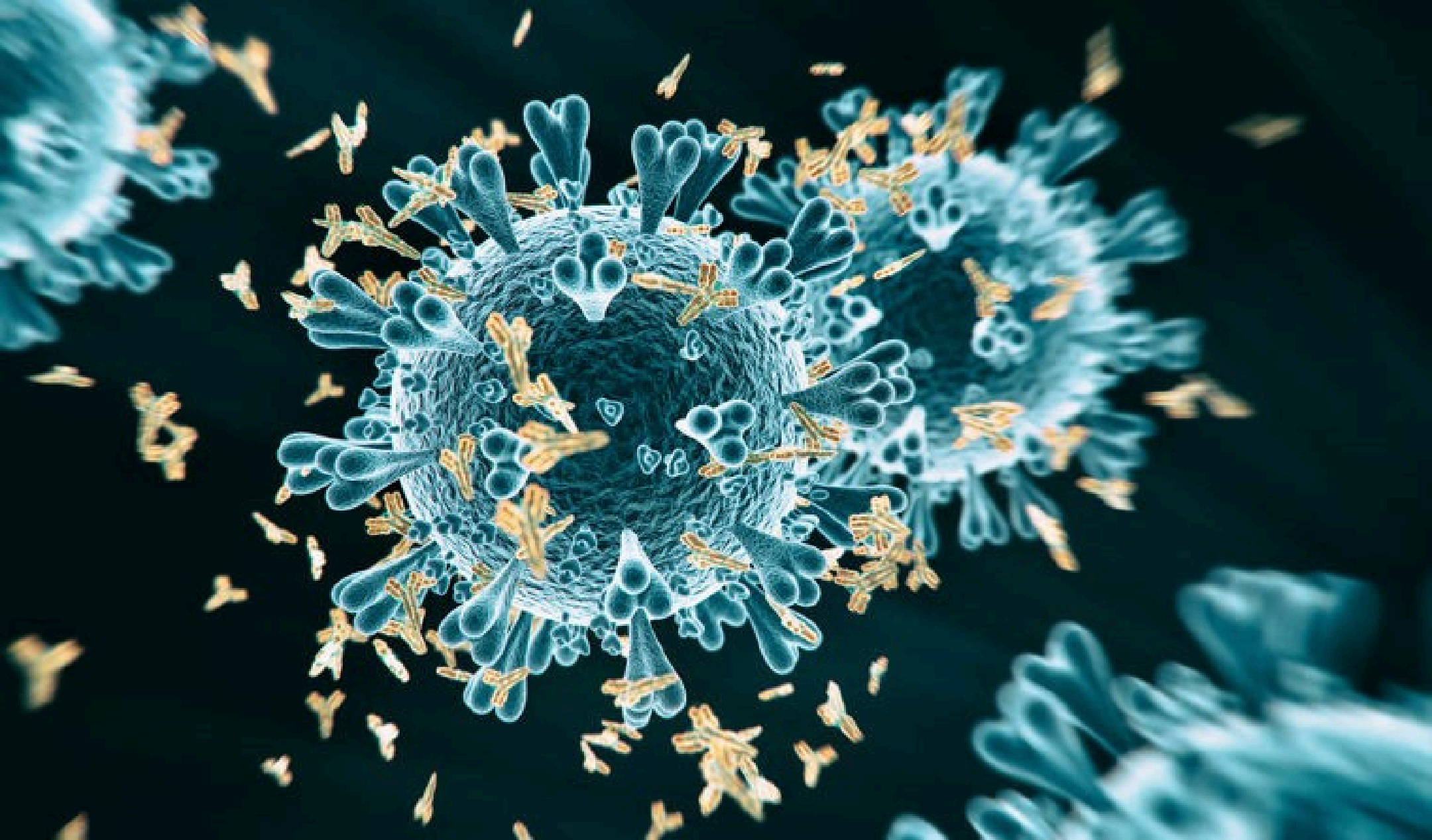
Brew's ayurveda inspired prophylactic platform is based on self amplifying biomolecules delivered through a transdermal skin patch which can be applied, without help by the patient himself. These oral, nasal and transdermal prophylactics can act as adjuvants to injectable vaccines

Antibody



Monoclonal antibody based therapies provide passive immunity to complement the active immunity provided by the vaccines.

Though monoclonal antibody based products sit on the boundary of prophylactics and therapeutics, they are gaining importance in light of microbial drug resistance.

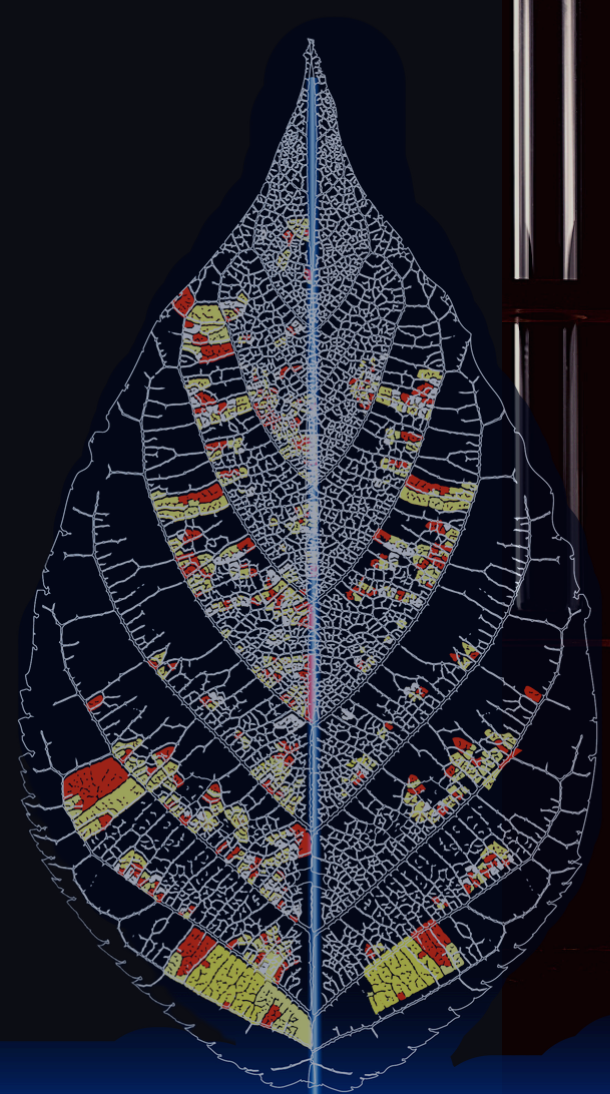


Monoclonal antibody based medications account for a very significant percentage of new blockbuster therapies to address a wide range of diseases from rheumatoid arthritis to hepatitis. The primary deterrent for widespread use is their cost. Brew is addressing this vital parameter.



4. Go To Market

- Target Diseases
- Delivery mode
- Enhance effectiveness
- Key geographies
- Comparative advantage
- Competition



Targets

- Airborne flu viruses and influenza
- Vector borne diseases like dengue and chikangunya
- Bacterial diseases like Tuberculosis
- Parasitic diseases like malaria
- HIV-AIDS
- Covid 19
- Engineered viruses used in biowarfare

Delivery Mode

Transdermal

Injectable

Oral

Nasal

Digital



Prophylactic effectiveness is proposed to be enhanced by using multi modal delivery with multiple, multi dose formulations targeting the same disease.

Efficacy

Brew is a multimodal multidose prophylactic platform. Brew proposes to deploy a prudent combination of multiple vaccine types, suitable adjuvants and traditional high potency, fast acting, standards compliant immunity boosters.

This approach leads to higher concentration of antibodies in a shorter time.

Geographies

Infectious diseases are primarily an emerging world crisis. Tuberculosis though present in some developed countries are a miniscule contributor to the death rate. In countries like India, tuberculosis accounts for close to a million deaths annually. Antibiotic resistant microbes and drug resistance are increasing the cost and efficacy of treatment.

Brew products are targeted at emerging markets around the world from sub Saharan Africa to tribal areas of latin America to south and central asia.

Advantage

The sustainable comparative advantages of Brew include:



- Understanding of emerging market needs
- Low cost and high volume manufacturing ecosystem in India with existing infrastructure and ecosystem in place.
- Access to cutting edge and low cost research sources
- Ability to integrate with ancient wisdom from traditional medicine systems .
- Operation under the SEZ framework facilitating unhindered imports of capital goods and exports of vaccines

Competition

Brew intends to cooperate with its competitors so as to meet the emerging market need for preventive medicine with a focus on infectious diseases.

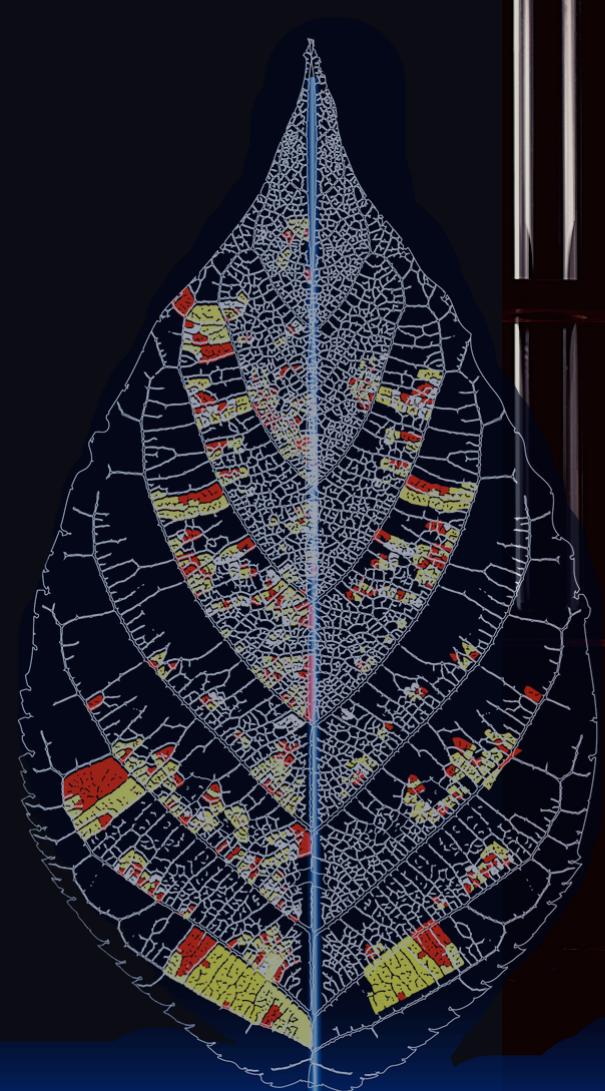
There are several established players in the vaccine industry in India including Serum Institute, Bharat Biotech, Indian Immunologicals, Bibcol, Biological E as well as emerging players such as Mynvax, Gennova and Zydus.

Serum Institute in Pune is a role model organisation for Brew in terms of overall business strategy and model.



5. Differentiators

- Cost reduction
- Logistics
- Mobile factories
- Mobile Clinics



Cost Reduction

Someone has to pay, even if a vaccine is distributed free of cost. Affordability is key to widespread deployment. And that requires a total cost approach - including administration, logistics, supply chain and tracking.



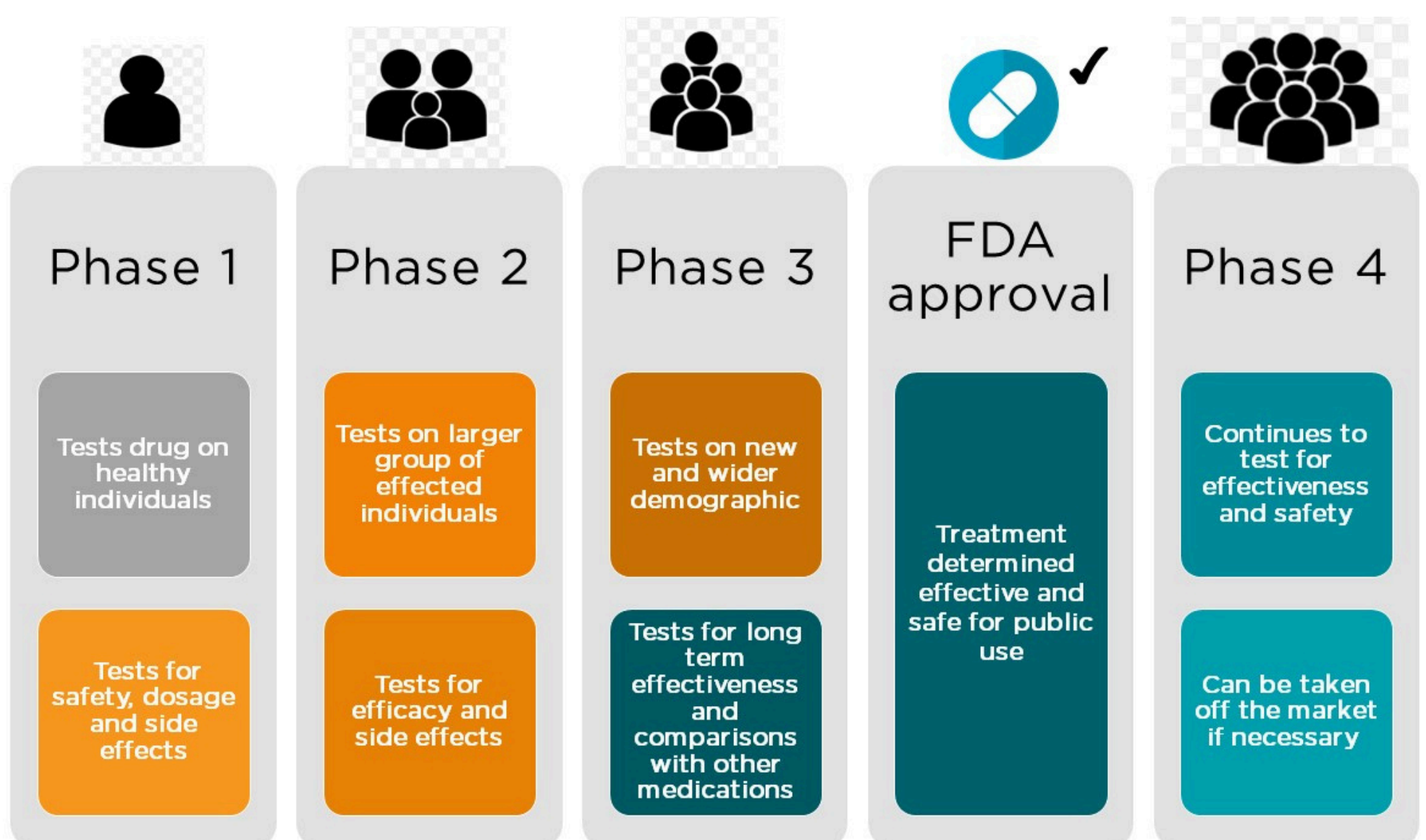
Logistics

By using lyophilisable formulations, the need and criticality of extreme cold chains is being avoided. This enables direct delivery through drones or air drops during a biowarfare attack for example. Self application avoids the need for trained manpower for administration



Clinical Trials

Brew is assembling an end to end ecosystem for speedy clinical trials. The chain includes small animal testing as well as large sample size human trials using gene sequenced volunteers to correlate test findings to genome structures. Digital twin trials open up a whole new frontier.



Factory on wheels

By miniaturising the production facility, Brew is able to compress the entire manufacturing facility into a mobile bus. This approach is not possible for virus based vaccines



Brew Clinics

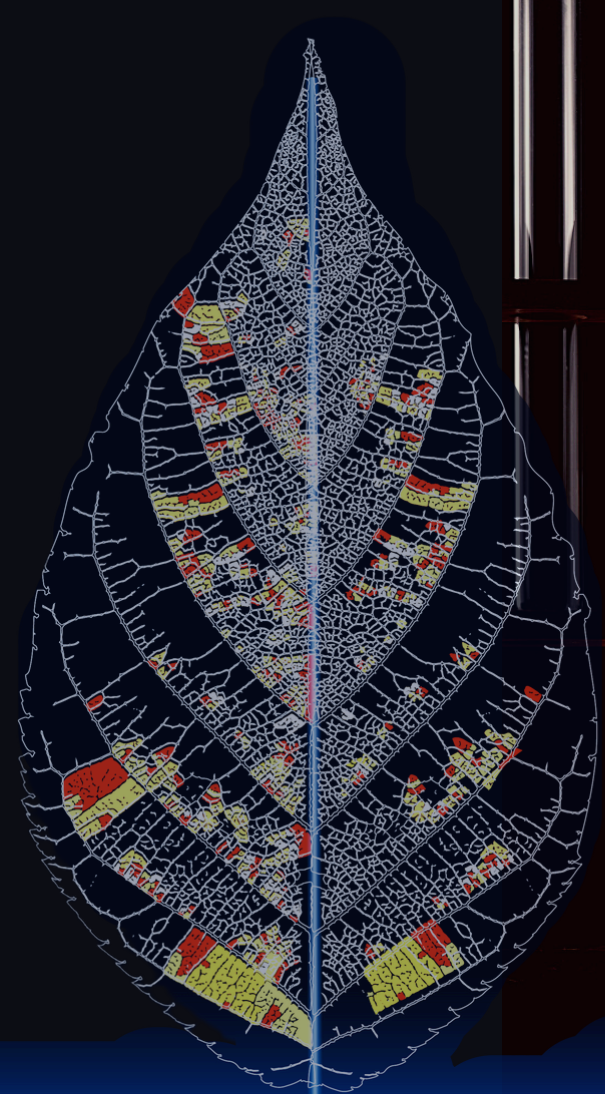
Covid is not the first or the last pandemic. Biowarfare is a distinct possibility. Conventional healthcare infrastructure cannot deal with the needs of mass vaccination. Infrastructure needs to be delivered where needed...urgently.. immediately.





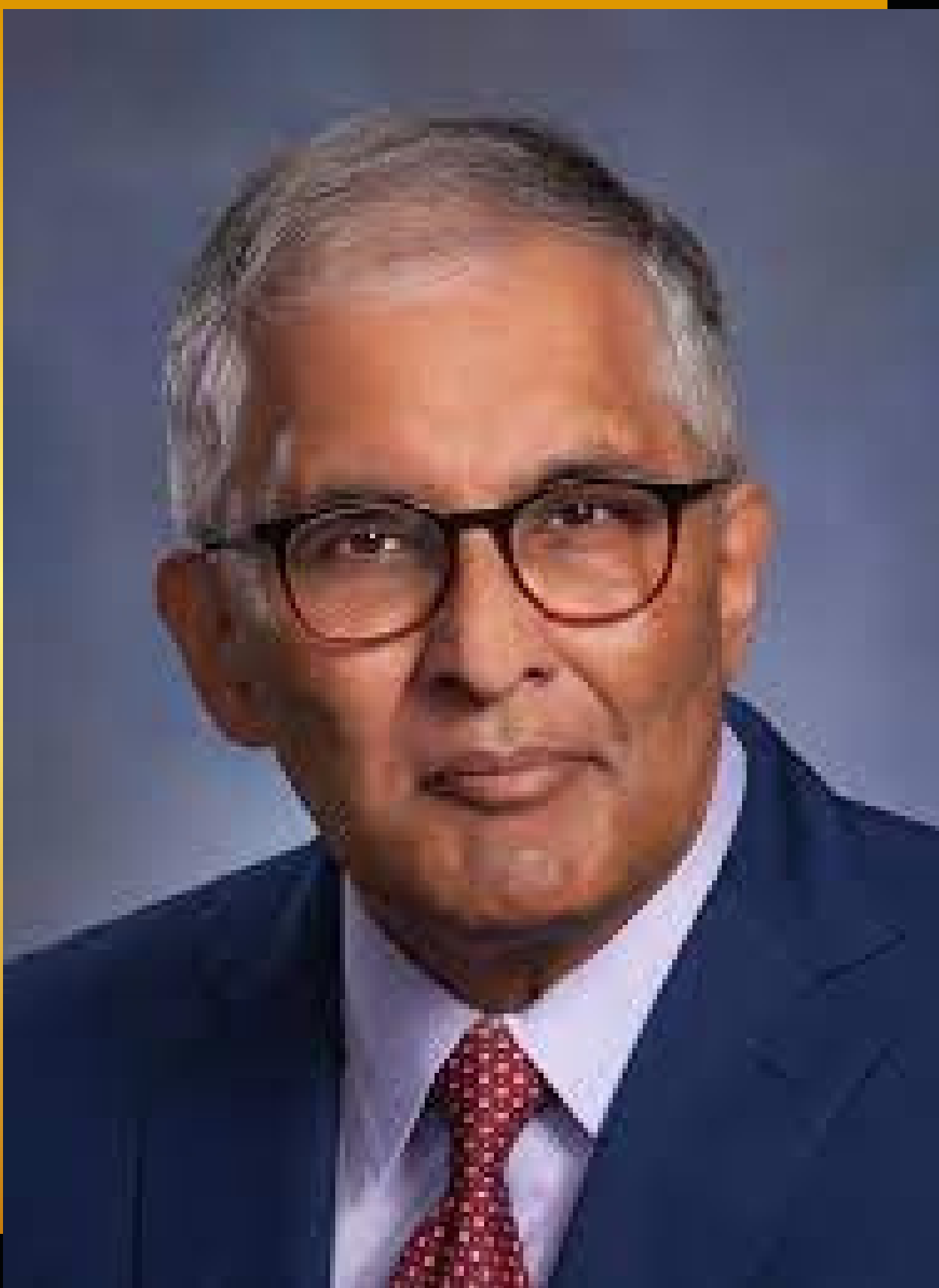
6. Softpower

- Chief Mentor
- Background
- Project Director
- Background
- Mentor Panel
- Governance



Dr Arindam Bose

Chief Mentor



"I graduated with a BTech in Chemical Engineering from IIT Kanpur in 1975. I have spent my entire career in the biologics space. Prior to retiring from Pfizer, I played a key role in assembling the talent and capabilities needed to develop the monoclonal antibodies as therapeutics: some of the same skillsets were more recently harnessed to bring PfizersCovid-19 vaccine to patients in record time.



Dr Arindam Bose
Chief Mentor, Brew
Distinguished Alumnus
Purdue University, 2018

Sanjay Nagi

Project Director



"I graduated with a BTech in Mechanical Engineering from IIT Roorkee in 1983. I have spent most of my career in project management and decision support. The covid pandemic has been an eye-opener for many of us. It is exhilarating to be part of a startup that aspires to prevent infectious diseases and is gearing up to prevent the spread of diseases in future pandemics. "



Sanjay Nagi, Project Director
Life Fellow, IIT Alumni Council

"Brew draws on the 100+ mentor team of the MegaLab initiative which has been drawn from among the 32,000+ members of the IIT Alumni Council. This pool represents among the world's best talent in foundational, frontier and exponential technologies - complemented by deep rooted competencies in venture capital, marketing and regulatory matters."



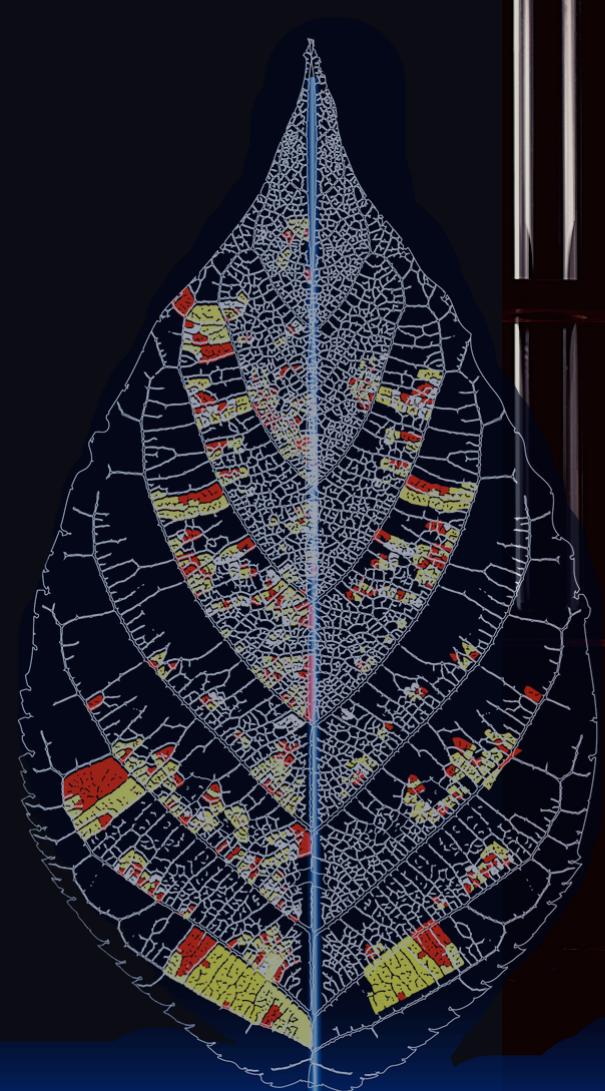
"A core team of over 500 volunteers from the IIT Alumni group, leading academicians, industry researchers, venture capital veterans, biotech experts, pharmacists, doctors, virologists..... from a wide variety of institutions ranging from the IITs to CSIR to ICMR to DRDO to UDCT and Mumbai University contributed in whatever way possible to make the MegaLab and Brew vision a reality."





7.Funding

- Acquisition
- Glidepath
- Series A



Acquisition

MegaLab anchor acquired a majority controlling stake of 70% in July 2020 and pivoted the business model from bioengineered molecules to vaccines.

MegaFund has committed to subscribe to 33% of all pre IPO rounds (with an upper bound of Rs 100 crores)



Glidepath

Brew is pursuing an asset light model which focuses on market needs rather than on core research. The glidepath involves setting up an in-house pilot facility and research centre with captive manufacturing units in the NCR area, contract manufacturing in the Bangalore/ Hyderabad belt, packaging units in the Baddi area and product development resources in the Mumbai Pune belt.



Governance

Brew is built around a promoter less paradigm with a three way separation of shareholders, board and management. The organisation is being structured to be professionally managed and board run without any identified promoter group. In keeping with the MegaFund term sheet, the company would be listed on a stock exchange on a pre revenue basis.



Venture Debt

Brew is currently raising a venture debt round of Rs 10 crores to meet working capital requirements for trading in prophylactic products. These funds will be used to launch Brew branded products in the Indian market through online pharmacies.



Series A

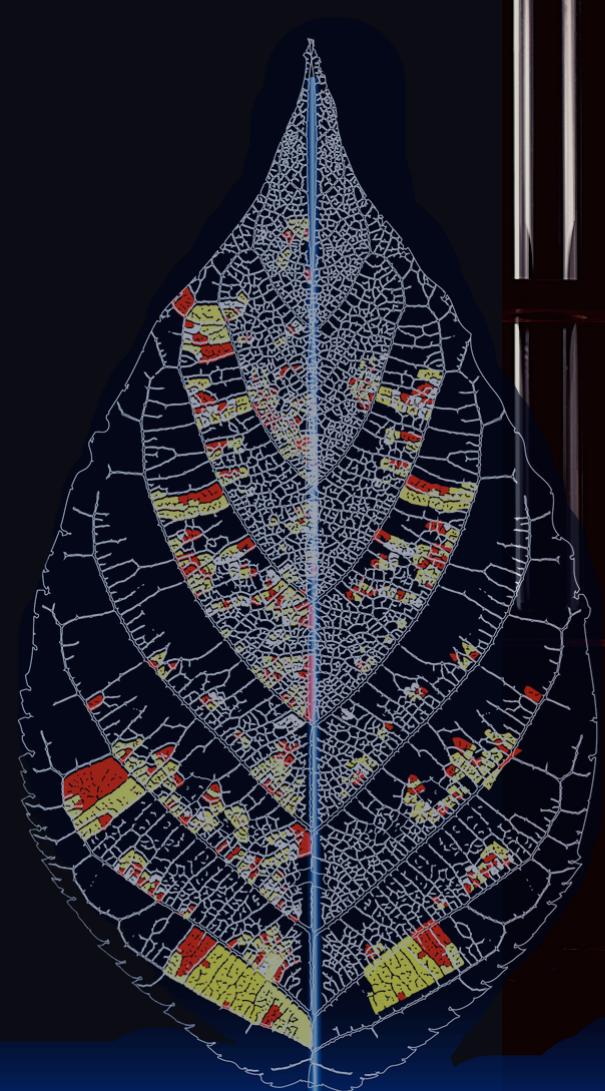
Brew is currently raising a pre-Series A round of Rs 30 crores, of which 33% has been pre-committed by the MegaFund. These funds will be used to launch Brew branded products in the Indian market through online pharmacies.





7. Contact Details

- Communications
- Location



Communications

projects@brewfactory.in

partnership@brewfactory.in

Telephone:

+1 650 900 8833

www.brewfactory.in



Location

Brew is building a 25,000 sqft pilot plant and R&D centre at the outskirts of Delhi in a SEZ location with a drone port for direct connectivity to the airport.

R&D Centre building as on 30.9.20





Brew is closely aligned with the Kodoy mission of creating a personalised digital replica of the individual at near molecular level for clinical trials of prophylactic products.

Disclaimer:

This is not a prospectus for the purpose of raising equity funds. The objective of this document is to share a vision and plan with committed donors who have agreed to back a global vaccine play similar to Serum Institute which is a well known success story in this domain. This document is an internal document and is strictly confidential. This document is not meant to be shared with any external agency with or without a non-disclosure agreement.

The vision and mission of Brew is in various stages of deployment and we would not like any of our intent and activity to be construed as implemented. These are in the nature of intent and it is entirely possible that none of these plans would every be implemented or funded or executed. This document is not a prospectus.

Brew is structured as a commercial company with stated objectives of being listed on a stock exchange. However, this is not a conventional company as it targets impact over profit. It is unlikely that the company will make any profits in the medium term. The focus of the company is to help its shareholders and members to prevent infectious diseases. Whilst it is possible to monetise sickness, it is extremely difficult to monetise prevention.

Whilst Brew aspires to partner with disruptive startups and technologies at an early stage, it is highly unlikely that all or even most of the products taken to market will be profitable investments for the company. Any investments in Brew must thus be looked at highly risky investments with very high uncertainty of returns - either through dividends or through capital appreciation. They are thus only meant for highly qualified investors with the ability and appetite for the inherent risk in the same. Anyone accessing this document should not assume that a high risk business does not mean high reward.



Engineering prevention