INVEST IN ENGEN BIO

A vaccine and therapy to provide lifetime immunity to Type A Flu

engenbio.com Redwood City CA

Technology | Animals | Social Impact | Healthcare | Bio Tech

LEAD INVESTOR

Director at Barnes & Noble

Dr. Mark Alfenito and his team combine that exceedingly rare combination of brilliant scientists with savvy businessmen to create a biotech company focused on ending the influenza scourge while keeping significant value and future potential earnings in the company. They are passionate about the science and their investors. During this pandemic, there is heightened awareness on this sector. The company is poised to make great discoveries that will be beneficial to science and medicine while extremely lucrative to investors.

Invested $50,000 this round & $600,000 previously

OVERVIEW UPDATES WHAT PEOPLE SAY ASK A QUESTION

Highlights

1. Potential for lifetime immunity against the worst strains of flu and prevention of all flu pandemics.
2. Our vaccine could save 50K-250K lives a year and prevent untold suffering of millions caused by flu.
3. Veterinary applications to prevent all swine, avian, equine and canine influenza and pandemics.
4. Peak sales could reach 2.6B in the U.S. alone, in an $11.4B global market (not guaranteed).
5. Seven issued flu vaccine patents in major strategic markets.
6. Potential for early liquidity.
7. Experienced team of entrepreneurs with a combined total of 6 FDA approved drugs and >50 patents.
8. >50% of our lead investors are biotech execs and MDs who've vetted the science & its potential.

Our Team

Dr. Mark Alfenito President & CEO

20+yr serial biotech entrepreneur | $600M in corporate deals/transactions | 3 founded pharmaceutical startups | 2 IPO | 1 acquisition | 13 patents | Cornell (BS) | Harvard (MS/PhD Cellular & Developmental Biology) | Post-doctoral Fellowship Stanford

We were developing a universal influenza vaccine and therapy well before the Covid-19 Pandemic started. Our team is driven to identify potentially transformative treatments and preventions for difficult diseases, -flu is a great place to start!

Dr. Mark Baer Vice President of Research

20+yr R&D of therapeutic antibodies | 20+ groundbreaking academic papers | 16 issued patents | Cornell University (BA) | UNC Chapel Hill (PhD Biochemistry) | Post-doctoral fellowship (National Cancer Institute)

Dr. Geoff Yarranton Science Advisor

35+yr biotech veteran | 20+yr C-level exec | 3 FDA-approved pharmaceuticals (Mylotarg, Bexxar, Cimzia) | 2 successful bio/pharma mergers (including IPO) | 36 US patents | University of Leicester (BSc, Hons) | NIMR (PhD) | Post-doctoral fellowship MIT

SEE MORE

Influenza Has An Achilles' Heel — We've Discovered It

EnGen Bio's lead program focuses on developing an effective, easy-to-

manufacture, shelf-stable vaccine and therapy to confer long-term immunity to all Type A influenza strains, including all flu pandemics, all Type A seasonal flus, and all animal flus.

Our goal: with one or two shots, you could be protected from the worst seasonal influenza viruses, and all pandemic influenza strains for life. Or, if you have already been exposed or have come down with the flu, our therapy could offer you a treatment.

Our vaccine for humans and animals and our therapy for humans are based on our discovery that a small region of a particular flu protein has very strong constraints against mutation. When used to vaccinate test animals, this region of the protein appears to elicit a highly protective antibody response upon viral challenge.

Learn more about our science at engenbio.com.

Three Products, Three Large and Distinct Market Opportunities

Human Influenza Vaccine

Product Profile: A recombinantly manufactured, lyophilized, room temperature–stable, subunit vaccine that stimulates a durable immune response to all Type A and pandemic influenza strains.

Status: Our next steps in development of the vaccine are to improve the peptide immunogen to increase antibody titer and document sustained response in mice. That early form of the vaccine will then be tested for efficacy in mouse viral challenge models. We will also engineer and test alternative approaches using T-cell 'helper' epitopes in conjunction with the identified peptide immunogen in a novel vaccine delivery format in mouse viral challenge models. Once proof of principle is obtained, the program can proceed towards human trials.

Market Scenario: U.S. demand for the seasonal flu vaccine has been forecasted to exceed $3B by 2024, with worldwide annual sales of GlaxoSmithKline's seasonal flu vaccine currently reported at $1.5B.

At a price point similar to that of the conventional seasonal flu shot, the Engen Bio vaccine could see peak sales of $2.6B in the U.S. alone (not guaranteed) in an $11.4B global market. FDA Fast Tracking is also possible, which may help expedite clinical development and reduce development costs.

Human Therapeutic Antibody

Product Profile: A high-affinity, long–half-life, human-engineered, monoclonal antibody that targets the Type A, M1 protein epitope exposed on the viral surface, useful prophylactically or therapeutically at any time during an ongoing Type A or pandemic influenza infection.

Status: We are currently working to identify a new, higher-affinity therapeutic antibody with greater potency, and confirmed universal Type A binding. The antibody will be tested in mouse viral challenge models, with administration occurring after viral infection. Upon success, the antibody will be converted into a form suitable for human use (i.e. human-engineered), and then retested in its human form. A manufacturing cell line will be constructed, and out-licensing discussions will be initiated.

Market Scenario: Annual sales of flu therapies range from $800M–3B/year, relative to seasonal need. However, the efficacy of the three medications that are currently available (Tamiflu and Xofluza by Roche and Relenza by Biota) is markedly low — with effectiveness only at the earliest stages of infection. Drug resistance to these products is a documented and growing concern.

EnGen Bio's therapy, in stark contrast to existing flu medications, could potentially be used for effective treatment at any time during an infection or prophylactically, in anticipation of exposure. By meeting the need for a significantly more effective and longer lasting therapy, we will be able to compete and potentially dominate this market.

Veterinary Influenza Vaccine

Market scenario: Although veterinary vaccines are currently available from several large pharma players (including Merck, Zoetis, and Elanco) the value of these products is calculated via the product's need vs. its efficacy vs. its cost of goods (COGs). The efficacy of current solutions along with the savings they create are remarkably low. The current swine flu vaccines, for example, decrease mortality only by ~9%, corresponding to a savings of merely $3–10 per animal.

And while influenza has historically been considered as a veterinary problem

only in avian, swine, and equine populations, new strains affecting canine populations have been recently identified.

The USDA is consequently offering funding for new solutions in all affected animal species.

The projected higher rate of efficacy of Engen Bio's animal vaccine, combined with potentially lower COGs (from recombinant manufacturing), make our product a prime candidate for acquisition.

Use of Proceeds

EnGen Bio intends to use the proceeds of this financing to fund ongoing operations of each of the three programs, which are designed to meet value-driving, fundable milestones as their endpoints. Operations include research and development, establishment of intellectual property, managerial compensation, and general corporate purposes.

MINIMUM RAISE SCENARIO

$250,000 + $100,000 + $50,000

WeFunder Raise | *Cash on Hand* | *Forgivable PPP Loan*

A minimum raise will support us in reaching the most important milestone: Proof of Concept through a challenge study that achieves a 95% confidence level (P=0.05). Roughly $90,000 will be required to manufacture and optimize two test peptide test vaccines, the best of which will be tested in a challenge study with mice. Remaining funds will be designated for further intellectual property establishment, legal, managerial compensation and general corporate purposes.

Note that we have received a PPP loan of $21,463. We have applied for this to be forgiven and do not expect the forgiveness to be rejected. We applied for an addition $41,600 through the PPP program. We expect to receive the full amount, although it cannot be guaranteed.

EXTENDED RAISE SCENARIO

$1,070,000 + $100,000 + $50,000

WeFunder Raise | *Cash on Hand* | *Forgivable PPP Loan*

An extended raise will enable us to continue developing and testing for each of the programs for further significant de-risking and establishment of other key value drivers. In addition to the challenge study described above, we will be able to extend our focus to the testing of the potent, universal human anti-flu antibody for therapeutic use, for patients already afflicted by the flu, to arrive at what would be a first for vaccinology.

Available Non-dilutive Resources

Because of the high priority assigned by the government and various private institutions to influenza preparedness, there are substantial, and competitive resources available to aid in non-dilutively supplementing our research funding.

The NIH provides R&D grant funding for pre-clinical flu programs. The NIH has already granted EnGen Bio access to use their influenza facility and animals, free of charge (a value-add ranging from $300K--$1.5M for animal pre-clinical testing, depending on how the facility is utilized).

With positive results in our preclinical proof of principle work, the Biomedical Advances Research Development Authority (BARDA) and the Defense Advanced Research Projects Agency (DARPA) may fully fund both manufacturing and human clinical trials through their on-going influenza programs. Grant assignment is at the discretion of the organization, but in the past has exceeded $100M for later-stage projects.

Additionally, we were recently notified by the Gates Foundation's of interest in funding ~$1M of our initial development work in the human vaccine program once proof of concept has been met. They indicated that with such data in-hand,

they would likely fund all preclinical development work required to reach human clinical trials, which could exceed $10M of non-dilutive funding.

Note that we have not yet received the aforementioned funding. Procuring these funds is not guaranteed.

An Urgent Global Problem that Must Be Addressed

> *The direct and indirect economic costs of influenza in humans — without including livestock or pets — exceeds $11B annually in the US alone.*

The magnitude of the problem — the annual costs and the certainty of another pandemic — has leaders and public health oriented organizations calling even more loudly for action in the wake of COVID-19. Join us in bringing our solution to fruition and to market, in saving lives and reaching people around the globe.