

AVRIL BIOPHARMA

Bio-pharmaceutical Product Development for Personalized Medicine and Global Health

Avril Biopharma, Inc. researches, develops and manufactures recombinant bio-pharmaceutical products specializing in molecular technologies, manufacturing technologies and enterprise models that enable low-cost, agriculture based vaccine, therapeutic and diagnostics production.

Our mission is to meet the challenges of global health by making safe, efficacious bio-pharmaceutical products easier to develop, manufacture and distribute anywhere in the world.

Technology Based Approach

Avril Biopharma services can facilitate rapid design, testing and production of your recombinant products based on three core technologies:

Structural Genetics™ -- Discovery bioinformatics, genomics and computational biology for surveillance and new product design.

AdCEV™: Technologies for producing recombinant vaccines, diagnostic and therapeutics in hen eggs.

AgriPharm: Scalable manufacturing systems for production of high quality products using an agricultural production base.

The **AdCEV™/egg** platform is a gene technology for expressing proteins in fertilized hen eggs. It offers a simple, safe and scaleable alternative to mammalian, insect, and yeast cell-culture expression systems that can be used to manufacture complex products in simple context. AdCEV™ vectors extend the range of high-value products that can be made in eggs.

Each egg is used as a miniature bioreactor, and production is a batch process so many protein design variants can be evaluated in a high-throughput manner, cutting the cost and time of development.

Successful products can be scaled up from one egg to thousands of eggs in a simple and efficient, saving time and money.

Avril Biopharma scientists are actively developing improved vectors for producing different types of protein-based biopharmaceuticals in hen eggs. Working with our industry partners, we can help you develop a commercialization program. You can benefit from decades of clinical manufacturing experience using eggs *and* the most advanced vector, bioinformatics, and translational research technologies available for developing a high quality biological product.

What we do.

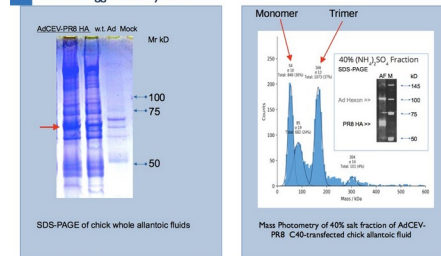
GENETIC DESIGN

State of the art and proprietary genetic analysis for sequence, structure and functional design of products. Early detection and monitoring of emerging variants of concern at the molecular sequence level.

PRODUCT ENGINEERING

Translational Research to optimize the yield and quality of your product candidates. Support for pre-clinical

Expression, Fractionation and Multimer Formation of recombinant Influenza Puerto Rico 8 Hemagglutinin produced in eggs with AdCEV/Egg vector system.



and clinical research and commercialization steps.

1. Diagnostic testing kit reagents;
2. Subunit, VLP and peptide antigens;
3. AAV vaccines;
3. Monoclonal antibodies (mAbs);
4. Serum proteins, interleukins, enzymes.

PRODUCTION

Our AdCEV™/Egg platform can be used to produce high quality recombinant proteins. Working with our network of partners, can design and build **turn-key production facilities** for manufacturing life saving products using agriculture based platforms.

Engaging Business Clients

- **Contract Research (CRO)** services offer our clients access to Avril Biopharma technologies and the resources of our partners in exchange for research fees, license and royalty payments.
- **Contract Manufacturing** offering access to bulk GLP/GMP manufacturing of products we have developed for clients by working with the best industry resources, and including option of complete facilities design and construction.
- **International Business Development & Consulting** providing expert consulting in both technology and business practices; building consensus bridging local and global health needs for international collaborative projects. We have experience working with governments and agencies in Africa and elsewhere related to public health, agriculture and pandemic preparedness.

Create your next recombinant product using our efficient and inexpensive research & development services for recombinant vaccine, therapeutic, diagnostic or research products in eggs. *Our research services include:*

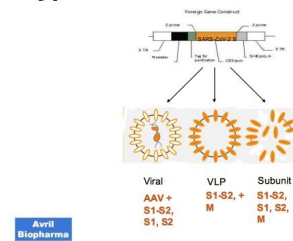
- Genomics and Bioinformatics analysis;
- Sequence and protein molecular structure engineering;
- Protein characterization and analysis
- Purification and product stabilization, Q/A and Q/C
- Rapid scale-up & GMP manufacturing.

AgriPharm --Distributed Solutions for agriculture-based vaccine and biopharma manufacturing in LMIC settings.

Scalable manufacturing systems for production of high quality products using an agricultural production base.

AFRIVAX-COVID19 is our proposed initiative to build a consortium of stakeholder that can build modular, small-scale and medium-scale vaccine manufacturing facilities as a model for enabling countries in the African World to respond to pandemics based on Sustainable Preparedness against future emergent threats. With the assembled technologies and resources, African nations will be empowered to rapidly and efficiently re-purpose *existing* agricultural sector resources to produce countermeasures *locally*. Our goal is to create a networked consortium of African stakeholders that can **build a world-class bio-pharmaceutical value-chain** that will continue to serve the continent after the pandemic is over. We are seeking partners from all over the world to engage in building this platform to support future healthcare in Africa.

Production opportunity for 3 types of SARS-CoV-2 vaccines



Team and Networks

Company Direction:

- **Eluemuno R. Blyden**
- **Gary Ciment**
- **Christi Muoneke**
- **Ken Christiansen**
- **Marie Mazur**
- **Najim Animashaun**

Industry Partners:

- **Rame Hart Sanovo**
- **Circularis Biotech**
- **Helix Biogen**
- **Foley & Lardner, LLP**

Avril Biopharma, Inc. has built close, working relationships with specialist companies in the bio-pharmaceutical research, development and equipment manufacturing fields. We also have ties with Academia and Clinical resources that can support a translational research project from discovery to clinical testing and manufacturing.

Government & Industry partnerships to build easily deployable modular egg-based facilities

Bringing it all together in small scale plants for regional applications in human and veterinary health...



Avril Biopharma, Inc.

Tel: +1, 510-833-4755

Afrivax@avrilbiopharma.com

www.AvilBiopharma.com

LinkedIn: Avrilbiopharma