

Etubics Corporation

Creating next generation vaccines

Presented by Dr. Frank R. Jones
Chairman, CEO and CSO

Overview

Etubics patented platform creates vaccine products to treat diseases such as select cancers and protect against infectious diseases, creating a robust pipeline of products. Our platform has the following novel attributes:

- Conquers the safety and immunological issues of first generation adenovirus (Ad5) vector vaccines
- Induces both antibodies and cell mediated immunity (CMI)
- Overcomes the barrier of Ad5 vector immunity

Etubics Clinical Phase Program

- Product: Ad5 [E1-, E2b-]-CEA
- \$2.5 million from the NCI-SBIR
- In Phase I/II Clinical Trials
- Future Clinical Use: Enhance CMI, increasing anti-cancer immunity

Our Team

Dr. Frank R. Jones, Founder, Chairman, CEO, CSO

- 20 years public and private Biotech Founder and CEO experience
- 10 patents and over 45 scientific papers

Joseph P. Balint, PhD, Laboratory Operations Director

- 20 years experience taking products from the bench to the bedside
- 10 patents and over 40 scientific papers

Raj Dua, PhD, Vice President Operations

- 15 years experience in GMP manufacturing of cell based products

Scientific Advisory Board

H. Kim Lyerly, Duke University

Jim Mulé, Moffitt Cancer Center

Andy Amalfitano, Michigan State Uni.

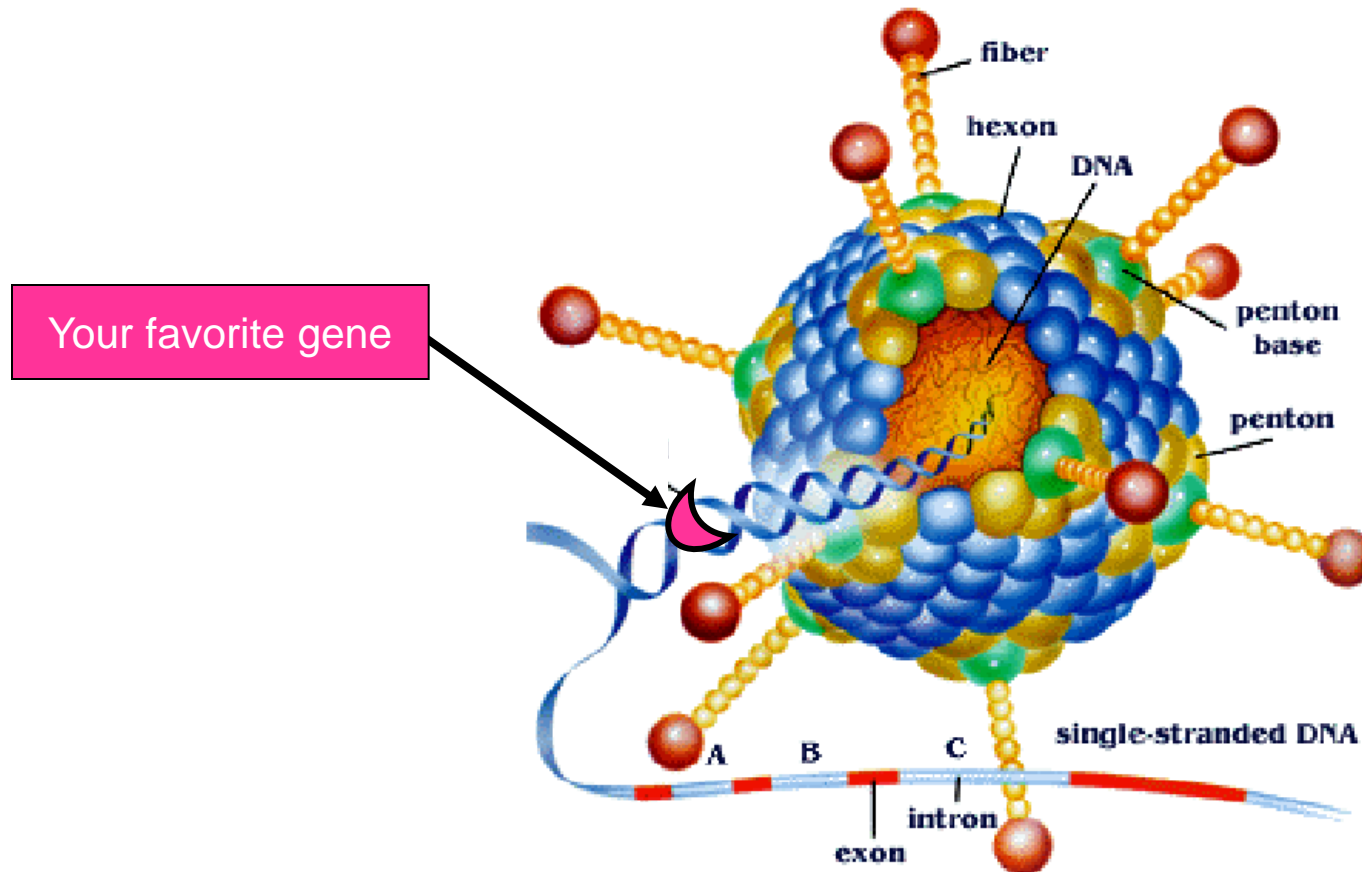
John Lee, Univ. South Dakota

Dusty Miller, Fred Hutchinson Cancer Center

Technology Platform

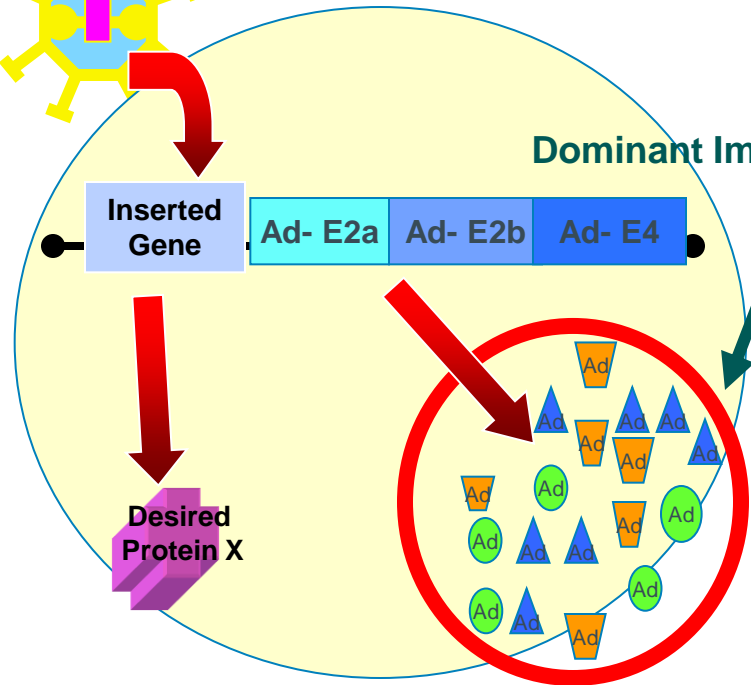
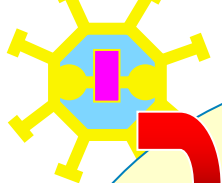
- Natural immunity to Ad vectors blocks previous Ad vaccines. Etubics vaccines are stealth like to the immune system.
- Disease genes are incorporated into adenovirus vectors in which the E1 and E2b regions have been deleted—Largest deletions
- Gene products activate CMI immunity, which most vaccines cannot. This is the secret to preventing or treating hard to treat diseases.
- Prospective therapeutic and preventative application of products.
- Product Pipeline includes Adenovirus vector vaccines for: colon cancer, breast cancer, Influenza, HIV, HPV, IL-12

Adenovirus vectors act as a gene transfer “work-horse”

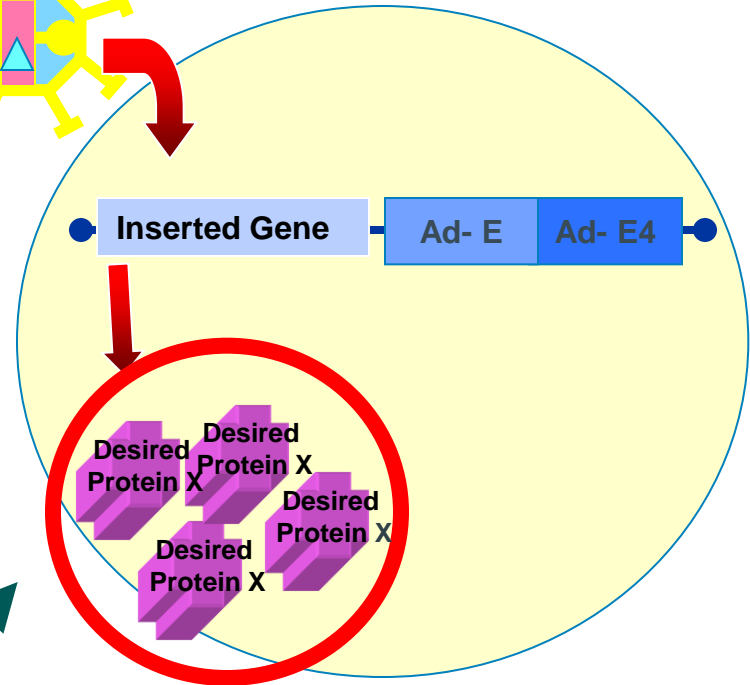
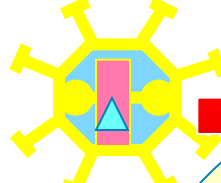


Etubics Ad5 Vector Platform

Ad5 [E1-]



Ad5 [E1-, E2b-]

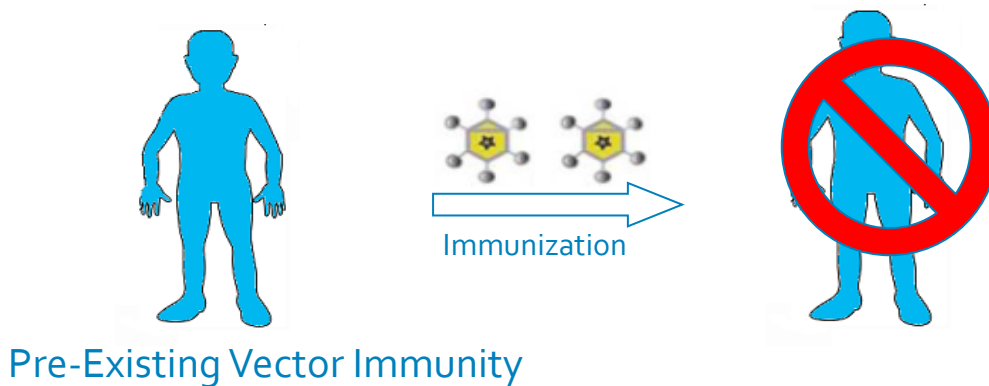
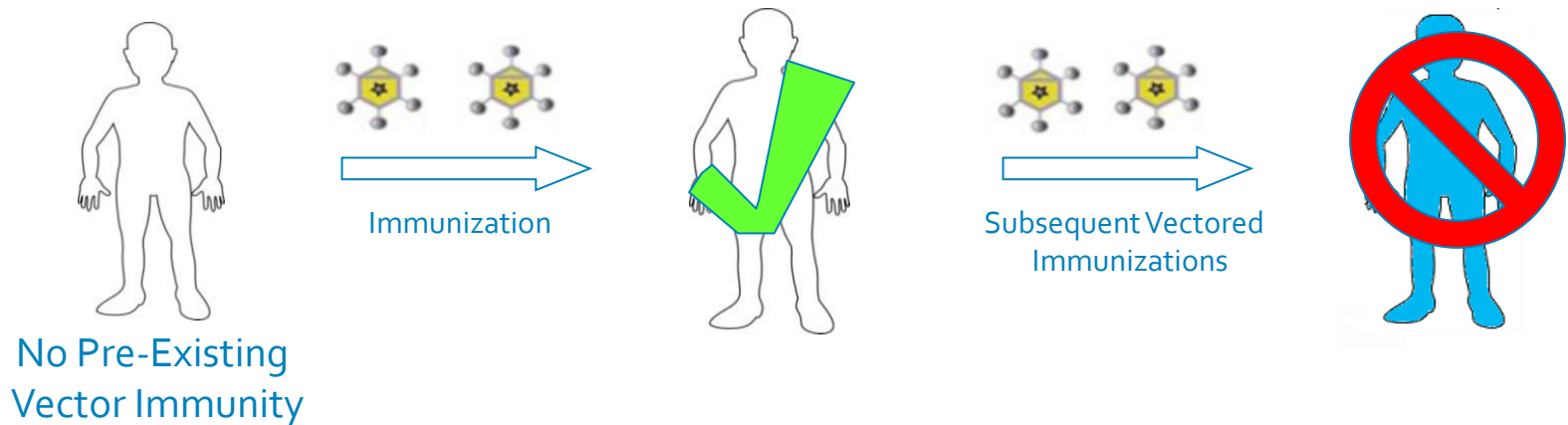


Previous Platform

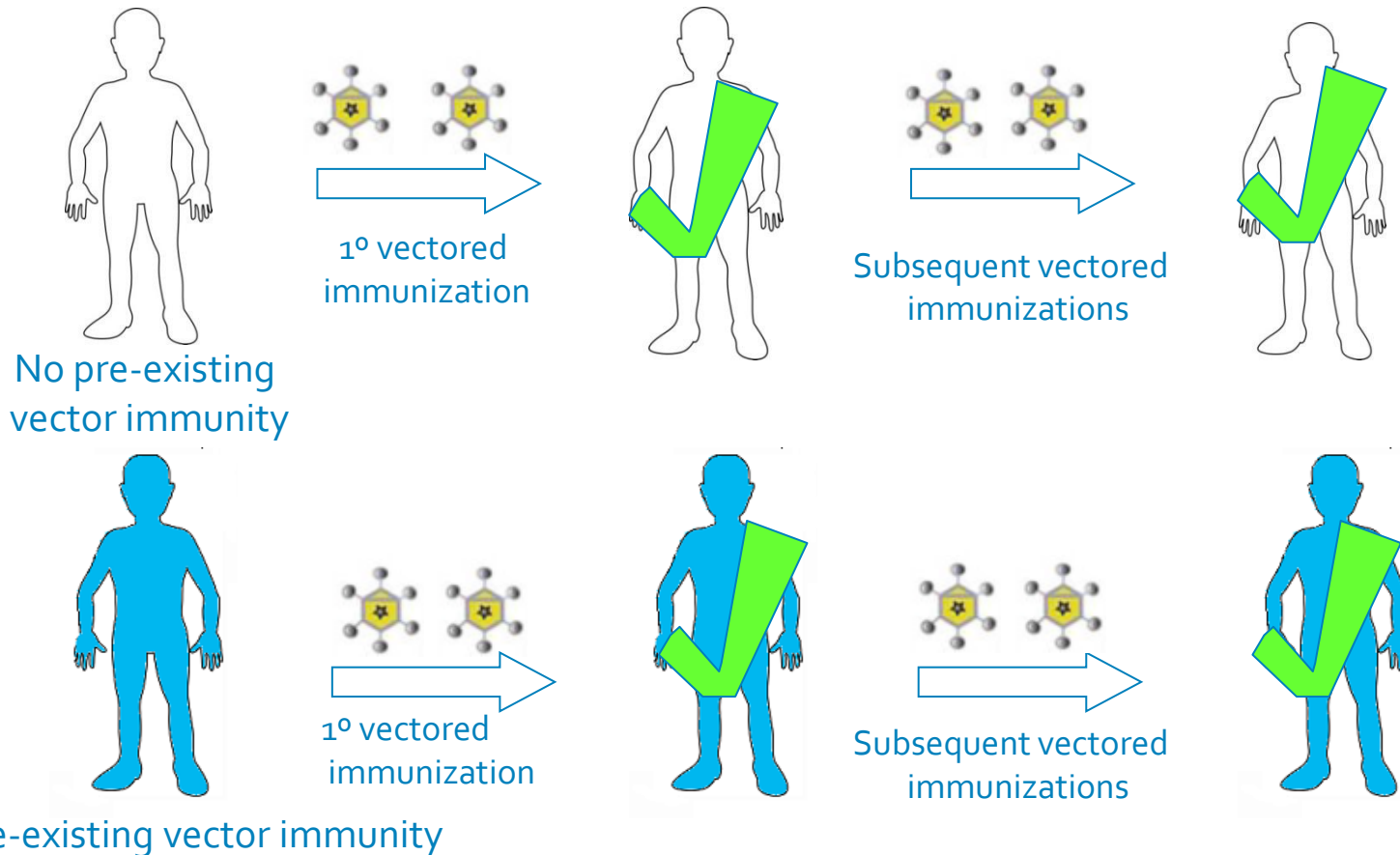
Etubics Platform

Ad vector immunity challenge

First Generation Vector Vaccines Are Resistant to Re-Immunization



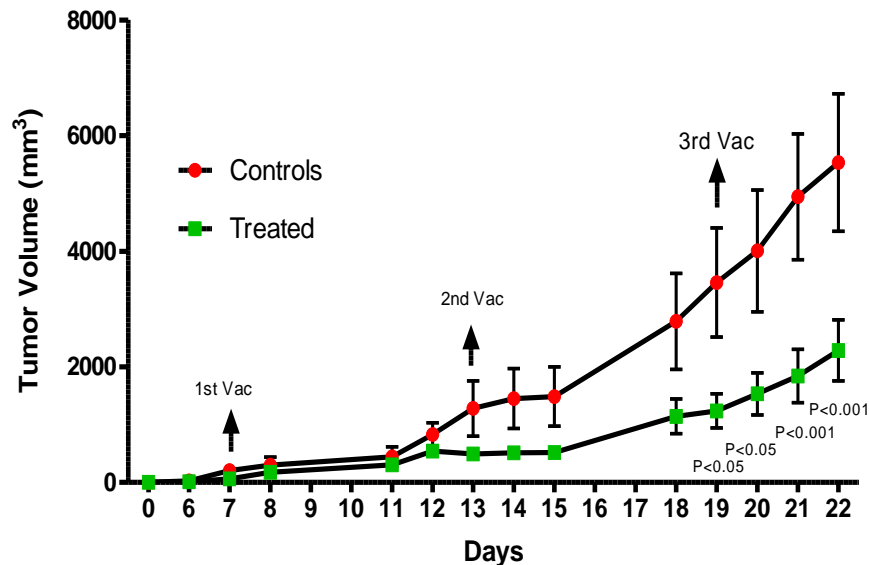
Etubics Ad Vaccines Can Be Delivered and have Efficacy in the Presence of Vector Immunity



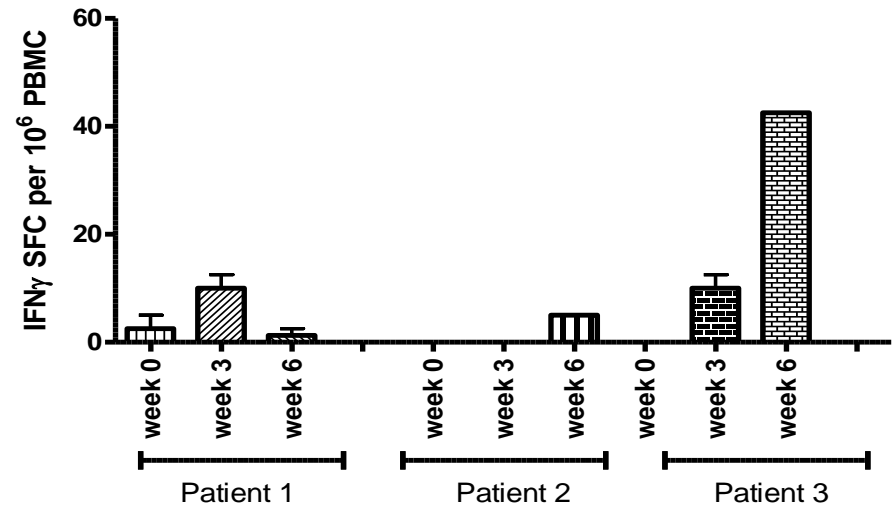
Etubics Vaccine: Colon Cancer

- Product under evaluation in Phase I/II study Ad5 [E1-, E2b-]-CEA
- Multiple immunizations needed for treatment of cancer
 - Additional boosts of Etubics vaccine provides robust CMI
- Etubics products inhibit cancer progression in proportion to CMI

Treatment of mouse CEA expressing cancer



Treatment of human CEA expressing cancer



Competitive Advantage

	Produced in Human Cell Line	Antibody and Cell Mediated Responses	Can Immunize Multiple Times	Ease of Use Through Injectables	Advanced Manufacturing
Etubics Platform	✓	✓	✓	✓	✓
Autologous cellular immunotherapy	✗	✓	✓	✗	✗
First Generation Adenovirus Vaccine	✓	✓	✗	✓	✗
Monoclonal Antibodies	✓	✗	✓	✓	✓
Classical Therapy	✗	✗	✓	✓	✓

Intellectual Property

- Foundational IP licensed from the University of Michigan
- Etubics has additional patent applications covering platform
- 7 issued patents comprising production of platform in a human cell line
- Inventors continue to be involved in product development (SAB)
- Trade secrets and numerous peer reviewed publications, e.g.:
 - Cancer Gene Therapy (2009; 16:673-682 and in press)
 - PNAS (2002; 99: 12979-12984)
 - Vaccine (2009; 27:6394-6398)
 - Cancer Immunology Immunotherapy (2010; 59: 1131-1135)

Business Development

Licensing:

- Available now: human cell line for manufacturing
- Second product within 24 months – colon cancer
- Two additional products within 36 months – breast cancer & influenza

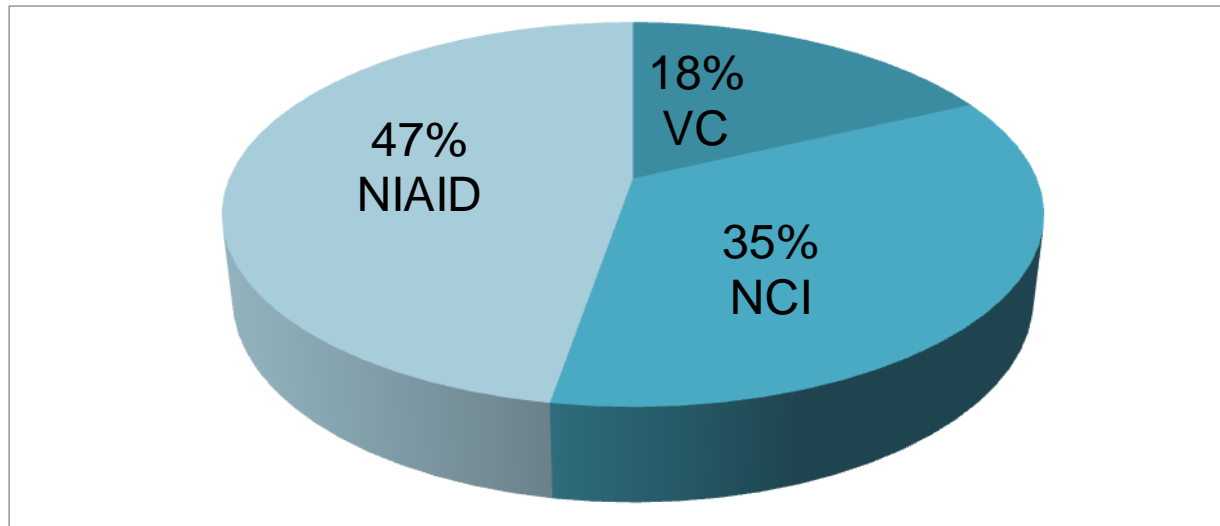
Partnerships:

- Preliminary discussions with major pharmas
- Target - two major partnerships in two years

Product Opportunities (< 5 years):

- 12 products tested in animals
- Four products brought to proof of concept and in clinical trials

Current Funding



- Over \$7.5 million in grants from the National Institutes of Health
- NCI funding supports CEA clinical trials
- NIAID funding supports HIV pre-clinical studies
- Venture Capital supported validation of E.C7 human cell line

Summary

- Platform technology that creates multiple products
- Products can be delivered in the presence of host immunity, thus *boosting immunity capability*
- Induction of antibodies and cell mediated immunity
- Validated human cell line for manufacturing
- Clinical trials underway and additional targets ready for trials