

## CONTACT

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## PREVIOUS FUNDING:

DOE: \$1M  
LANL: \$250K

## SEEKING CAPITAL:

\$750K

## USE OF FUNDS:

PACKAGING: 20%  
TESTING: 40%  
PRODUCT DEV: 25%  
MARKET DEV: 15%

## TEAM:

Anand Kumar, Grace Vuyisich, and Armand Dichosa

## PRINCIPAL INVESTIGATOR:

Anand Kumar, DVM, PhD  
Is a UC-LANL Postdoc Entrepreneurship Fellow and Director's Postdoc at Los Alamos National Laboratory. His former technical mentor at LANL, Momo Vuyisich, is CSO of startup Viome, Inc., a Los Alamos company that has recently raised \$15M for mapping gut microbiome and finding customized solutions to health problems.

## AWARDS:

Anand Kumar has received number of highly competitive awards and fellowships. He also holds two patents under his name.

## IP:

Invention disclosure filed

## SUMMARY

Dif-Fix is being developed for patients who are at high risk for *Clostridium difficile*, a bacterium that causes diarrhea and serious intestinal conditions like colitis. C-diff is deadly, killing over 30,000 people a year in the United States and costing an average of \$42,000 per treatment. The most common treatment is a fecal transplant (FT). The anti-C.diff replaces the invasive and messy FT practice with a pill.

## PROBLEM

Over 500,000 cases of C.diff are diagnosed each year in the United States. Following unsuccessful antibiotic treatments, many are left with a FT as the only option. Widespread acceptance of FT practice is limited due to unpredictable side effects and risk of pathogen transfer. Costs and patient trauma of treatment are high and a patient dedicates an average of 14 days for treatment. In 2013, the CDC listed C.diff as an urgent threat.

## SOLUTION

For C.diff patients, especially those at high risk for a recurrent infection, Dif-Fix provides a universal, safe, non-invasive treatment in the form of a pill. This is accomplished by utilizing a new platform developed at Los Alamos National Laboratory that characterizes those microbial interactions that suppress C.diff. Key cell-to-cell interactions are identified that rid the body of C.diff and will prevent it from reoccurring. A microbial cocktail is developed from this testing and transferred into pill form.

## TECHNOLOGY

Anaerobic High-throughput Screening of Cell-to-Cell Interaction (An-HiSCI) developed and fully validated for the pharmaceutical application. This technology rapidly and robustly characterizes billions of cell-to-cell interactions in a microbial community, which is humanly impossible by any existing microbiological techniques.

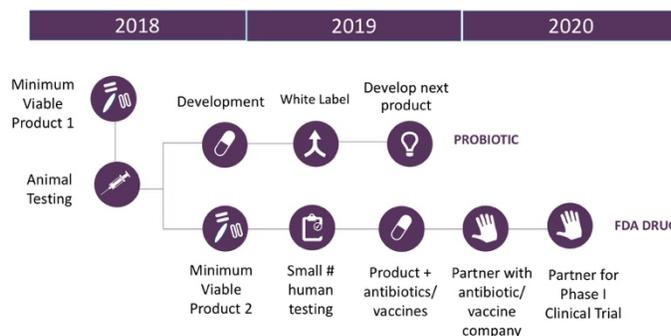
## MARKET

In 2016, the US total market for treating C.diff was \$1.5B and the total addressable market of \$750M with those at high-risk for a reoccurrence after treatment. Our initial targeted segment within the TAM are patients who have had a reoccurrence, accounting for \$250M per year.

## GO TO MARKET

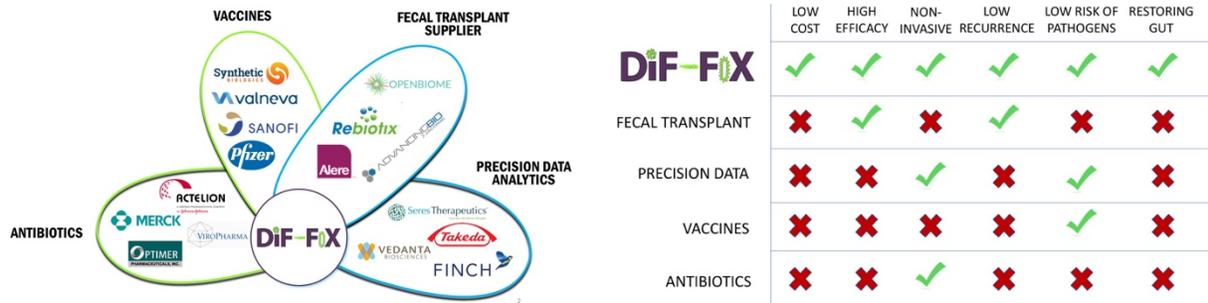
We are now in the process of identifying microbial a cocktail(s) from healthy donor fecal sample(s) to create anti-C.diff pill. The next step is testing on humanized animals.

Following successful testing on pigs, a local medical school will run a small-scale test on human C. diff patients. The results gathered will put us on a parallel track to 1.) produce a probiotic that can be used as an over the counter therapy or be taken before and/or after with an antibiotic. 2.) an FDA approved pill.



## COMPETITIVE LANDSCAPE & ADVANTAGES

DiF-FiX can be a standalone treatment or complementary to boost the efficacy of both antibiotics and a vaccine.



## ASK

We are looking for support and potential partnership in three areas:

1. Funding for animal testing
2. Scale up in product development
3. Partner with probiotics and/or a pharmaceutical company