

Trana Discovery, an anti-infective drug discovery technology company, helps its partners find novel classes of drugs for the treatment of serious bacterial, viral, and fungal infectious diseases. The technology identifies compounds that work through a unique mechanism of action: inhibition of the target pathogen's ability to use transfer RNA (tRNA) essential for protein synthesis or replication. The use of Trana Discovery technology can unlock the value – scientific, human, and financial – that is hidden in drug compound libraries, expedite the discovery of new drugs identified by rational drug design, and provide opportunities for exclusive rights to new drug classes.

### **The Need for New Treatments**

The need for new, effective treatments for infectious diseases is growing rapidly in every corner of the world today. A plethora of effective antibacterial agents introduced in the 1970s and 1980s satisfied that need for a period of time but because of the pathogens' ability to develop resistance many formerly effective drugs have lost their ability to control infections. There are now some strains of resistant bacteria for which there is no effective treatment currently available. Additionally, emerging viral resistance continues to require the addition of new treatment modalities to keep HIV and other viral infections in check.

### **History**

Trana Discovery (formerly known as Neos Discovery) was founded in 2000 by Andrzej Malkiewicz, PhD of the Institute of Organic Chemistry at the Technical University of Lodz, Poland and a biochemistry science team at North Carolina State University, including Winnell Newman (Co-Founder) and Richard Guenther (Co-Founder, Chief Technical Officer).

Dr. Malkiewicz' laboratory is one of few in the world with the expertise and high level of success in synthesizing modified nucleosides for incorporation into complex RNA oligonucleotides by having developed novel methods for these syntheses. With over twenty years experience with the chemical synthesis of modified nucleosides and phosphoramidite chemistry, the team well understood the importance of transfer ribonucleic acid (tRNA) in the spread of infectious disease.

Winnell and Richard were joined by a veteran team of former Glaxo executives to commercialize the technology and build a successful drug discovery technology company. The management team consisting of Steve Peterson (CEO), Dan Mitchell (CSO), Mike Gallucci (CFO), Ed Gallagher (VP of Intellectual Property), and Frank Johnson (VP of Sales and Marketing) has in-depth knowledge and experience in drug development and commercialization. The Glaxo veterans have been joined by Sam Yenne, Chief Development Officer; Shawn Barney, VP of Research; Karl von Gunten, VP of Communications; and Leigh Ann Gallucci, VP of Financial Reporting and Accounting.

#### **Quick Facts**

- Start-up from North Carolina State University
- Proprietary and patented technology
- Experience industry and start-up team
- Based in Cary, NC

### **Patented Technology**

Patents were granted in 2002 and 2005 for the technology that is the basis for Trana Discovery's capabilities. These patents describe methods both of inhibiting microbial propagation and of screening for compounds that have this unique antimicrobial activity – the inhibition of tRNA. By inhibiting selective tRNAs used by bacteria, fungus, and protozoa, protein synthesis would be hindered thus stopping pathogen growth and spread of infection. The same concept applies to disruption of replication in certain viruses. This patented technology has been under development at NCSU which, in 2004, granted licenses to Trana Discovery to pursue commercialization of the technology.

In 2006, Trana developed the Trana HIV 101 Assay for the identification of new compounds for the treatment of HIV. Then in September of 2007, the company announced the follow-on development of the Trana HIV 201 high-throughput screening (HTS) Assay. The HTS assay was developed in collaboration with Southern Research Institute, a research organization that conducts basic and applied preclinical drug research. This new assay gives pharmaceutical companies the ability to rapidly and efficiently screen vast libraries of compounds to identify tRNA inhibitors.

### **Broad Range of Applications**

The proprietary technology can be applied to a broad spectrum of infectious diseases, including chronic diseases such as HIV, bacterial diseases caused by multi-drug resistant strains, and resistant fungal diseases. The initial assay is available to identify inhibitors of tRNA used by HIV during viral replication, and a second assay that will identify inhibitors of a unique tRNA essential to *Staphylococcus aureus* is currently in development. In the future, Trana Discovery technology will enable scientists to discover novel inhibitors of emerging infectious diseases, both naturally occurring and manmade, for underserved areas such as drug-resistant tuberculosis and malaria, and for biodefense-related infectious diseases such as pneumonic plague and anthrax.

### **Target Markets**

Trana Discovery is interested in licensing tools (screening technology) to pharmaceutical companies and academic institutions for use on compound libraries. For any target pathogen, the screening of compounds, especially those with documented activity but unknown mechanisms of action, may yield new classes of anti-infectives agents. Collaboration and licensing agreements for development and commercialization of discoveries are arranged on a case-by-case basis.

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