TRANA Discovery

Frequently Asked Questions

Can you explain the technology in layman terms?
Trana helps partners discover new anti-infectives 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.

How does the technology work?
Trana Discovery technology is applied to assays that are used to screen libraries of chemical compounds to identify those that have the ability to inhibit specific types of transfer ribonucleic acid (tRNA). Transfer RNA is essential for bacterial protein synthesis and viral replication, and if the normal role of tRNA is disrupted, these pathogens cannot survive. Until now, tRNA had not been exploited as a target for antibiotics, but Trana's technology makes this possible. As such, Trana's technology represents both a drug target and a mechanism to identify compounds that affect the target. Inhibitors of tRNA specific for an identified pathogen, such as HIV, *Staph. aureus,* or *E. coli* for example, are in turn potentially useful as antimicrobials to treat infections caused by these pathogens. Ultimately, Trana can help partners discover new antibiotics that work through this unique mechanism.

What is unique about this technology?
Trana Discovery's patented technology is believed to be the only one of its kind that can directly detect compounds that inhibit the normal binding of tRNA. Because of the vital importance of tRNA in bacteria and certain viruses, compounds with the ability to disrupt normal tRNA binding would represent entirely new classes of antimicrobial agents.

Where would a company use this technology?
Any entity with an interest in discovering new anti-infective agents and a library of chemical compounds could apply Trana's technology to screen for compounds that inhibit tRNA.

Are there any competing technologies?
Most all pharmaceutical companies with drug discovery capabilities would consider their own in-house activities as competitors of Trana Discovery. Furthermore, there are numerous other drug discovery businesses, but none are known to involveTrana's unique technology.

Why would a company want to use this technology?
New drug discoveries made using Trana technology will represent novel, first-in-class drugs with a unique mechanism of action. Nearly every significant human pathogen is resistant to at least one class of commonly used antibiotics, so new drug classes would represent a significant advance in the treatment of infectious diseases.

Why are you focusing on HIV?
Trana is focusing on HIV because of the ongoing need for new, effective compounds to treat the infection caused by this virus. Furthermore, considerable science indicates that the HIV virus depends on a specific tRNA for its replication, and disruption of the virus's ability to use this tRNA will

render it unable to replicate and survive. We are confident that Trana technology will lead to novel, unique anti-HIV treatments.

What is the regulatory process to get your technology approved?
Drug screening assays are not regulated like drug development, manufacturing, and marketing. Thus, Trana's assays are not subject to FDA regulations.

What is the make-up of the assays?
Trana's assays are synthetic copies of portions of specific tRNA molecules found in the micro-organisms selected as the targets for any potential anti-infectives that are discovered. There is a different assay for each pathogen.

What do you mean by "assaying a library of compounds?"
Pharmaceutical companies and certain other entities such as academic institutions own large collections, or libraries, of chemical compounds, some of which they hope can be developed into drugs. The collections are assayed or tested in numerous ways to look for properties that may make them suitable for development. Trana's assays look for one specific property – the ability to inhibit tRNA. If this property is detected in a compound that is also found to have anti-microbial activity using conventional microbiological testing procedures, chances are that it, or a chemically related analog, could be developed into an anti-infective drug.

How can the use of the technology lead to new classes of drugs?
Currently there are no classes of anti-infective compounds that specifically inhibit tRNA. The unique opportunity using the Trana discovery platform will uncover inhibitors of tRNA. tRNA is essential for a bacterial cell to create new proteins. Lacking new proteins the bacterial cell will not divide and thereby limit the spread of infection.

Is there a particular chemical structure or class of compounds likely to inhibit tRNA?
At present the structural relationship between a chemical and bio-activity based on the inhibition of tRNA is unclear. As lead compounds emerge from the initial series of screenings, we may know more about the possible structural activity relationships. Based on the size and shape of the conserved region on the tRNA molecule, small inhibitory molecules are possible.

Can this technology be used in other areas of research, for example, agriculture?
At least theoretically, the application of tRNA inhibition might have a role in veterinary medicine and crop science, and possibly in cancer research. Trana Discovery intends to evaluate these potential roles in due course.

Why do you work with the university in Poland?
The synthesis of tRNA mimics is a very complex process and the leading scientist in this field is Andrzej Malkiewicz, Ph.D. Dr. Malkiewicz has been a research colleague in Trana's efforts from the start.

What is the licensing agreement with NCSU?
The terms of Trana's agreement with NCSU are confidential; however Trana does have the exclusive rights to all technologies surrounding the discovery of tRNA inhibitors.

Why has it taken the technology 20 years to be ready for commercialization?
The research surrounding tRNA has progressed dramatically over the past several years. It took some of these break-throughs in understanding the complete function of tRNA to progress our technology. Additionally, the production of mimics that would remain stable in an assay environment also needed to be perfected.

Why is this particular management team so unique?
Each member of our management team has been successful within the pharmaceutical industry in one's own unique career paths. Each member has at least 25 years of industry experience from which Trana will draw from all these experiences to progress the company in a rapid and judicious fashion.

Don't pharmaceutical companies already have enough targets to pursue?
The pharmaceutical industry and academic researchers have and continue to identify new mechanisms of action or targets for drug activity, and tRNA is among them. These new targets represent new opportunities to find novel treatments for still-unmet needs and hard-to-treat diseases. Moreover, particularly in the treatment of infectious diseases, causative organisms continually find ways to become resistant to even the best available agents, so new treatments are always needed. Trana hopes to discover new treatment classes to help stay ahead of these micro-organisms.

Do you use animals in your research?
The assays that Trana Discovery uses only involve testing with chemicals. No animals are used in our research.

Why don't you want to develop your own drugs?
Trana Discovery is focused on the development of assays that will identify inhibitors of tRNA among collections of existing compounds. Our ideal collaboration would cover the initial discovery of a series of inhibitors of tRNA from a partner's compound library and then licensing to a company the exclusive rights for that disease area. So our business plan while not excluding independent drug discovery, emphasizes our desire to license a disease specific technology to a well established pharmaceutical company for their drug discovery and clinical development.

What does Trana stand for?
Trana is not a word. It is a name that best signifies the importance of tRNA to the lifecycle of bacteria and viruses.