

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 – 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.

Assay Products

Two assays are available for licensing. The Trana HIV 201 High-Throughput (HTS) Assay – designed to identify compounds that inhibit the use of tRNA by HIV – has the ability to select compounds with anti-HIV bioactivity. The Trana *Staphylococcus aureus* 201 High-Throughput (HTS) Assay identifies compounds that inhibit the essential use of a *S. aureus*-unique tRNA^{Arg} that is required for protein synthesis.

The tRNA Mechanism

Scientists at North Carolina State University have long understood the crucial role of transfer RNA (tRNA). All organisms need tRNA for normal protein synthesis. Specifically in HIV, the virus uses human tRNA^{Lys3SUU} from the host cell to form complexes with the HIV genome RNA during replication. Inhibition of tRNA during RNA replication or blocking its recruitment during assembly should stop the replicative cycle, and the virus would not be able to survive.

Founders of Trana Discovery helped characterize the structure tRNA, particularly of the ultra conserved region, the anti-codon stem loop (ASL), of this complex protein. If chemicals that bind to these regions could be identified, thereby inhibiting the action of tRNA, new drugs could be crafted for use in treating human and animal diseases.

Patented Technology

Trana Discovery technology exploits this conserved region of tRNA through the following illustration. As infectious organisms are selected as targets, a unique probe, based on a pre-determined sequence, is developed to mimic the chemical structures of the ASL. The probe is then employed in a high-throughput screening process to identify compounds that react with high affinity and inextricably bind to the ASL, indicating discovery of a molecule that possesses tRNA inhibitory activity specific to the target pathogen. By inhibiting the role of tRNA and crippling protein assembly, protein synthesis cannot proceed, thus stopping pathogen growth and spread of infection. Because each pathogen uses a unique combination of tRNA, a wide range of compounds with targeted anti-infective characteristics is possible.

Scientific and Business Value

Scientists who employ Trana Discovery technology can stay on the forefront of scientific discovery and make significant scientific contributions in the fields of infectious disease and biochemistry. The Trana Discovery technology enables teams to discover new applications for existing drug compound libraries that they might have otherwise been missed using traditional screening assays. Trana Discovery technology can help to increase success rates and expedite discovery of lead drug candidates by demonstrating, quantifying, and validating the mechanism of action. Organizations that use Trana Discovery technology can progress drugs to their development pipeline more efficiently.

For More Information

Trana Discovery is seeking partnerships with pharmaceutical companies and academic institutions that have compound libraries for application of the screening technology. Collaboration and licensing agreements for development and commercialization of discoveries are arranged on a case-by-case basis. Exclusive licensing arrangements may be available. For more information, contact Trana Discovery at info@tranadiscovery.com, tel: 866-390-3452 (toll free), or int'l: +1-919-342-6192.

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