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# Trevena Receives Major New Award from NIH To Develop Delta Opioid Biased Ligand Drug

*Third NIH funding award since 2009 for Trevena to support the discovery of GPCR biased ligands*

KING OF PRUSSIA, Pa.--(BUSINESS WIRE)-- Trevena, Inc., the leader in the discovery of G-protein coupled receptor (GPCR) biased ligands, announced today that it has been awarded by the National Institutes of Health a five year U01 cooperative agreement, to develop a novel biased ligand to the delta opioid receptor for major depressive disorder.

The award was made through the NIH Blueprint Neurotherapeutics Network, which aims to develop new drugs for disorders of the central nervous system. It represents a significant collaborative effort in drug discovery and development by the NIH and Trevena. The Blueprint will fund both activities at Trevena, leverage resources at the 15 agency institutes and centers in the Network, and involve work by consultants and contractors, over a five year period, to complete hit identification, lead optimization, IND-enabling studies and Phase 1 clinical development for a delta opioid receptor biased ligand to treat depression. Funding will be reviewed annually and awarded based on successful completion of preset milestones. The objective is to advance a novel mechanism therapeutic into early clinical development for this underserved patient population. More details about the Blueprint Neurotherapeutics Network, and the Trevena award can be found at <http://www.neuroscienceblueprint.nih.gov/>.

Of the seven projects selected for Blueprint awards, six are driven by research teams at academic institutions. Trevena is the only drug discovery company included to date in this prestigious program. The Trevena award includes \$460,000 in direct funding, and access to millions of dollars worth of contracted research services. Trevena estimates that the award could be worth \$10 million if the project progresses the full five years as planned. Investigators will retain intellectual property rights for any drugs they develop through the Blueprint Network.

When asked about the Blueprint Network award, Michael Lark, Chief Scientific Officer at Trevena, and Principle Investigator on the Delta opioid project, remarked, "Being selected as the sole industry representative by the NIH for such a significant collaboration validates Trevena's leadership in GPCR biased ligand drug discovery. This major award will allow us to further demonstrate the promise of biased ligands as improved medicines for a disease which continues to destroy millions of lives."

This latest award is the third received by Trevena from the NIH over the last three years. In October 2009, the company was awarded a \$7.65 million Grand Opportunities (GO) grant by the NIH Office of the Director to apply high throughput screening technologies to the search

for biased ligands across a set of GPCR targets. This was followed last year by fast track Molecular Libraries high throughput screening award for biased ligands at the MC4 receptor.

### **About Biased Ligands**

One third of modern medicinal products target GPCRs, and they remain the largest class of targets currently under clinical evaluation. Traditional ligands either turn on or turn off all of the signaling pathways engaged by a particular receptor. This can result in efficacy limitations or undesirable adverse effects. In contrast, Trevena's novel drug discovery approach is focused on designing GPCR ligands that are "biased" toward activating one key receptor signaling pathway while blocking another. These biased ligands provide an enhanced level of drug specificity which allows enhanced efficacy or decreased side effects to be designed into the drug candidate.

### **About Trevena**

Trevena, Inc. is a leader in the discovery and development of GPCR biased ligand drugs. Trevena combines a powerful and efficient drug discovery platform with extensive development experience to yield a rich linked portfolio of novel medicines. The company's drug discovery technology is based on extensive research from the laboratories of leading scientists in the GPCR field - Robert J. Lefkowitz, M.D. and Howard A. Rockman, M.D. of Duke University Medical Center. TRV027 is a biased AT1R ligand, and Trevena's most advanced program, currently in Phase 2 studies for the treatment of acute heart failure. The company also has discovery-stage and preclinical programs targeting the mu opioid receptor for pain. Founded in 2008, Trevena is based in King of Prussia, Pennsylvania and is a privately held company backed by leading investors including Alta Partners, Healthcare Ventures, NEA, Polaris and Yasuda Enterprise Development Company. For more information about the company, please visit [www.trevenainc.com](http://www.trevenainc.com).

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