BIO5-TGen collaboration focused on drug development for Alzheimer's disease

New class of small molecules show promise against memory loss

TUCSON, Ariz. — March 20, 2013 — BIO5 Oro Valley today announced a collaboration with the Translational Genomics Research Institute (TGen) to develop new therapies for the treatment of Alzheimer's and other neurodegenerative diseases.

BIO5 Oro Valley co-Director and University of Arizona College of Pharmacy medicinal chemist Dr. Christopher Hulme's collaborative effort with TGen Assistant Professor Dr. Travis Dunckley will focus on the development of novel, small molecule inhibitors of dual-specificity tyrosine phosphorylation–regulated kinase 1A (DYRK1A). Upregulation of this kinase is implicated in promoting memory deficits associated with Down syndrome and neurodegenerative pathologies, particularly Alzheimer's disease.

"DYRK1A is a well-validated, recently discovered target, ready for translational efforts to deliver an oral medication to patients suffering from this insidious disease," said Dr. Hulme. "Indeed, coupled with the advanced small molecules in-hand that target DYRK1A, further efforts are underway that will broaden our therapeutic presence in the Alzheimer's arena to other Arizona-based biological discoveries."

Statistics from the National Institutes of Health indicate that 5.1 million older Americans — or 1-in-8 — suffer from Alzheimer's, which makes it the sixth leading cause of death in the United States and the only cause of death among the top 10 in the United States that cannot be prevented, cured or even slowed. Estimated to effect 45 million people worldwide by 2020, dementia is currently a leading, major unmet medical need and a costly burden on public health. Seventy percent of these cases have been attributed to Alzheimer's, a neurodegenerative pathology characterized by a progressive decline in cognitive functions.

"This collaborative partnership is a critical step in advancing discoveries of the role DYRK1A plays to developing therapeutics that could alter the course of Alzheimer's disease," said Dr. Dunckley.

Drs. Hulme and Dunckley will focus on providing a significant alternative to common approaches that focus on small molecules that inhibit the production of neurotoxic fragments of amyloid proteins and antibody immunization approaches targeting the build up of these fragments.

The joint effort will explore the decrease of DYRK1A activity in the brain with proprietary small-molecule inhibitors. This approach could lead to new therapeutic strategies to alleviate cognitive deficits associated with Alzheimer's and Down syndrome.

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About BIO5 Oro Valley

The University of Arizona's BIO5 Oro Valley is the State's translational drug discovery and development center which is focused on bringing new therapies to patients. The center houses an extensive library of over 100,000 compounds to partner with disease biologists to find new potential drugs and manage the drug discovery and development process through to IND filing. For more information, visit www.bio5orovalley.org

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About TGen

The Translational Genomics Research Institute (TGen) is a Phoenix, Arizona-based non-profit organization dedicated to conducting groundbreaking research with life changing results. Research at TGen is focused on helping patients with diseases such as cancer, neurological disorders and diabetes. TGen is on the cutting edge of translational research where investigators are able to unravel the genetic components of common and complex diseases. Working with collaborators in the scientific and medical communities, TGen believes it can make a substantial contribution to the efficiency and effectiveness of the translational process. For more information, visit www.tgen.org.

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