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Molecular Probe Measures Nucleosides and Differentiation of ATP and ADP (20120272, Dr. Valerie Pierre)

IP Status: Issued US Patent; **Application #:** 14/022,962

Molecular Probe Identifies Kinase Drugs and Metabolic Activity

A recently designed molecular probe can measure nucleosides. This high-throughput screening tool of kinase drugs is a valuable diagnostic tool for measuring drug activity in energy metabolism pathways. This small lanthanide-based probe binds selectively and reversibly to adenosine triphosphate (ATP) and adenosine diphosphate (ADP) with different affinities, which produces a weak interaction that has an influence on the luminescence of the probe. The most important benefit is that the probe is able to detect ATP at higher concentrations, closer to the intracellular concentrations of 1-10mM needed to screen inhibitors of low-affinity kinases.

Current Nucleoside Measuring Technologies

Nucleosides play crucial roles in energy metabolism within cells. Current state of the art technologies for measuring nucleosides are often accompanied by high costs, inability to measure nucleosides at physiologically relevant concentrations, cumbersome reagents, and require radio-active labels.

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Affordable Molecular Probe

The molecular probe is affordable, non-radioactive, label-free, antibody-free, generic, and enables the study of large proteins without being dependent on cumbersome reagents. The technology also enables time-resolved or time-gated luminescence detection along with the ability to measure the accumulation of ADP rather than the phosphorylation of a peptide.

ADVANTAGES OF THE MOLECULAR PROBE:

Technology ID
20120272

Category
Life Sciences/Pharmaceuticals
Life Sciences/Therapeutics

Learn more

- Single reagent molecular probe - fluoresces differently depending upon which nucleoside it is binding with
- Can be used as a real-time fluorescent probe in assay systems
- Used for the kinetic study of enzymes and enzyme inhibition-able to screen all classes of kinases which utilize nucleosides
- Not dependent on cumbersome peptide phosphorylation reagents
- Enable study of large protein substrates
- Affordable, non-radioactive, antibody-free, and label-free

Researchers

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http://www.chem.umn.edu/groups/pierre/

External Link (www.chem.umn.edu)