Tentative Outline

Special Issue for CURRENT PROTEIN & PEPTIDE SCIENCE

Guest Editor: L. Shannon Holliday

VACUOLAR H⁺-ATPASE: TARGETING A “HOUSEKEEPING” ENZYME FOR DRUG DEVELOPMENT

Aims & Scope:

Vacuolar H⁺-ATPases (V-ATPases) are multisubunit rotary motors. V-ATPases are required for “housekeeping” acidification of endosomes, lysosomes, phagosomes and other vesicular compartments in vertebrate cells. In addition, some cell types also express “specialized” V-ATPases. These are distinguished by cell-type restricted expression of isoforms of some, but not all, subunits. Drug development thus requires finding ways to interfere with the function of a particular specialized V-ATPase, without affecting the housekeeping enzymes. This issue contains articles that examine aspects of V-ATPase regulation, composition and functional roles in disease in order to detail the promise of V-ATPase-directed drugs, and identify some potential strategies for obtaining such therapeutic agents. In addition, two examples of rational approaches to the development of V-ATPase-directed drugs are described that have yielded novel small molecule inhibitors of osteoclastic bone resorption.

Key words:

Cancer, Osteoporosis, Anti-fungal drugs, acidification, vesicular transport, tissue invasion

Subtopics:

- Regulation of V-ATPase Expression in Mammalian Cells
- Targeting Reversible Disassembly as a Mechanism of Controlling V-ATPase Activity
- Novel insights into V-ATPase functioning: distinct roles for its accessory subunits
- ATP6AP1/Ac45 and ATP6AP2/(pro)renin receptor
- The V-ATPase as a Target for Antifungal Drugs
- Disruption of the V-ATPase functionality as a way to uncouple bone formation and resorption – a novel target for treatment of osteoporosis;
- Vacuolar H⁺-ATPase signaling pathway in cancer
- V-ATPase Subunit Interactions: The Long Road to Therapeutic Targeting
- Rational identification of enoxacin as a novel V-ATPase-directed osteoclast inhibitor

Schedule:

Manuscript submission deadline: June 30, 2011

Peer Review Due: September 30, 2011

Revision Due: October 01, 2011

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Final manuscripts due: October 10, 2011