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Special Issue on
Recent Developments of Carbonic Anhydrase Inhibitors as Potential Drugs

Call for Papers

Carbonic anhydrases (CAs) are a group of zinc-containing metalloenzymes which are ubiquitous in nature. It is a physiologically important enzyme that is responsible for catalyzing the reversible hydration of carbon dioxide to bicarbonate with the release of protons. Overexpression of this enzyme has been implicated in many disorders such as glaucoma, obesity, gastric ulcers, acid-base imbalances, and epilepsy. Carbonic anhydrase, therefore, has emerged as a valuable drug target for treatment or prevention of these disorders. Many clinically established drugs are CA inhibitors, and it is highly anticipated that many more will eventually find their way into the market.

One of the greatest challenges in the design of CA inhibitors is their lack of selectivity against CA isozymes. There are 16 (currently known) isozymes of CA with different tissue distribution and subcellular localization. Discovery of cancer-associated isozymes of CA (CA IX and CA XII) has sparked a renewed interest in the design of novel scaffolds with selective inhibition against these transmembrane cancer-associated CA isozymes. Much development has been made in this field; however, in order to find isozyme selective inhibitors with increased CA inhibition activity, it is necessary that new classes of compounds should be screened on CA isozymes. Original research manuscripts that report advancement in the field are invited. Potential topics include, but are not limited to:

- Discovery of new scaffolds with CA inhibition activity
- Design of isozyme selective CA inhibitors
- Targeted drug delivery systems for CA inhibitors
- Fluorescent CA inhibitors for imaging of hypoxic tumors
- Inhibition of bacterial (pathogenic) carbonic anhydrase
- Quantitative structure activity relationship studies that identify new leads for design of more active or selective inhibitors

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