

Special Issue

Physiological and Pathophysiological Functions of a Wide-Spread Superfamily of Metalloenzymes Known as Carbonic Anhydrases (CA)

Message from the Guest Editor

The superfamily of carbonic anhydrases (CAs, EC 4.2.1.1) represents a group of ubiquitous proteins, which catalyze the physiologically important hydration–dehydration reaction of carbon dioxide to bicarbonate and protons: $\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCO}_3^- + \text{H}^+$. Many CA inhibitors exist, which could be classified as inhibitors binding the metal ion, inhibitors anchoring to the water molecule/hydroxide ion coordinated to the metal (phenols, polyamines, thioxocoumarins, sulfocoumarins), and inhibitors occluding the active site entrance (coumarins and their isosteres); inhibitors binding outside of the active site. Inhibition of CAs has many pharmacologic applications, such as against glaucoma, convulsions, obesity, and cancer. Today, an emerging area is studying CAI as anti-infectives. This Special Issue is dedicated to all the fundamental advances in the field of carbonic anhydrases since the CA superfamily represents a very promising target for the scientific community for its ubiquitous and crucial role in many physiologic and pathologic processes. Original papers, review articles, and perspectives from experts in the field are welcome.

Guest Editor

Dr. Clemente Capasso

Institute of Bioscience and Bioresources (IBBR), National Research Council, Via Pietro Castellino 111, 80131 Napoli, Italy

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Editor-in-Chief

Prof. Dr. Maurizio Battino

Department of Odontostomatologic and Specialized Clinical Sciences, Sez-Biochimica, Faculty of Medicine, Università Politecnica delle Marche, Via Ranieri 65, 60100 Ancona, Italy

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