

Special Issue

cAMP Signaling: Function and Implication in Diseases

Message from the Guest Editor

cAMP, a signal transducer, plays important roles in a variety of cells and tissues in response to extracellular stimulants. While cAMP signaling is evolutionarily conserved in eukaryotes, it is also highly diverse and involved in the regulation of morphogenesis to behavior, skin color, and circadian rhythms. Dysregulation of cAMP signaling is linked to the development of various diseases, e.g., diabetes, cardiovascular disease, respiratory disease, autoimmune disease, neurological disorder, and aging. cAMP signaling modulates gene expression, translation, and protein degradation via the actions of protein kinase A (PKA) and exchange protein directly activated by cAMP (Epac). In addition, it is important that feedback mechanisms of cAMP signaling, e.g., phosphodiesterase, phosphatase, and the transcriptional repressor, regulate homeostasis of the above biological actions. Moreover, in coordination with Ca²⁺ signaling, cAMP signaling is found to moderate exosome production and release, which explains the involvement of cAMP signaling in new mechanisms for intra- and extracellular communications.

Guest Editor

Prof. Dr. Hiroshi Takemori

Department of Chemistry and Biomolecular Science, Faculty of Engineering, Gifu University, Yanagido 1-1, Gifu 501-1193, Japan

Deadline for manuscript submissions

closed (31 October 2023)



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



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*International Journal of
Molecular Sciences*
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MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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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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