



## Pleiotropic Effect of $\beta$ -Adrenergic Receptors in Human Cancers and Other Human Disease

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### Message from the Guest Editor

Recently, a growing number of studies have suggested that bio-behavioral factors, especially various stress-related persistent stimulations, might accelerate cancer progression, which is mainly due to  $\beta$ -adrenergic system activation.

$\beta$ -Adrenergic receptors on the tumor and stromal cells are activated by catecholamines such as adrenaline and noradrenaline. Based largely on retrospective analyses, pharmacological inhibition of the  $\beta$ -adrenergic receptors using beta blockers has shown clinical anticancer efficacy in many human cancers. In particular, recent advances have evidenced a role of the  $\beta_3$ -adrenoreceptor in different pathways involved in cancer progression, apoptosis, antioxidant action, metastasis, and microenvironmental transformation.

This Special Issue on “Pleiotropic effect of  $\beta$ -Adrenergic receptors in human cancers” of the *International Journal of Molecular Sciences* aims at providing new insights into the various functions of  $\beta$ -Adrenergic receptors in the several aspects of cancer progression mechanisms.

Dr. Claudio Favre  
*Guest Editor*





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