



Cell Growth Regulation

Guest Editor:

Dr. Andrew R. Tee

Division of Cancer and Genetics,
Cardiff University, Cardiff, UK

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Message from the Guest Editor

Mammalian cells have developed a network of signalling pathways that control their growth while maintaining energy and nutrient homeostasis. Mechanistic target of rapamycin (mTOR) lies at the heart of a cell growth signalling nexus. The capacity of a cell to grow is restricted by the supply of pre-cursor molecules necessary to generate proteins, lipids and DNA. To rapidly build biomass, mTOR has a multifaceted role, driving the efficiency of ribosomes to translate mRNA into protein while also manufacturing more of the ribosomal machinery through ribosomal biogenesis. Anabolic processes needed for cellular growth are highly energy demanding, so mTOR enhances mitochondrial biogenesis to generate more mitochondria, ensuring that the cell has enough capacity to generate energy as the cell grows. In the disease setting, improper mTOR signalling leads uncontrolled cell growth and homeostasis is lost. This review series will explore the range of mTOR-regulated processes that governs cell growth. We will review our current understanding of the complexities of mTOR and knowledge gaps in this topical research area.

Dr. Andrew R. Tee

Guest Editor





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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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