Autophagy in Stem Cell Maintenance and Differentiation [

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Springer International Publishing :
Imprint: Springer,
2023.

Monografía

This book covers a wide range of topics that illustrate the various functions of autophagy in stem cells and offers insights on the mechanisms by which autophagy can regulate stem-cell self-renewal and facilitate specific differentiation programs. Stem cells are unique cells present in most multicellular animals and are essential for their survival. They have two unique properties: the ability to self-renew and the ability to differentiate into one or more cell types. These characteristics of stem cells have found immense therapeutic potential in regenerative medicine. Autophagy is a crucial membrane trafficking pathway that is essential for maintaining cellular homeostasis that involves sequestration of non-functional proteins, protein aggregates and damaged organelles in double-membraned vesicles called autophagosomes, which are subsequently targeted to the lysosome for degradation. The primary aim of this book is to provide knowledge of recent developments in our understanding of the role of autophagy in stem cells, including germline stem cells. Autophagy is considered a promising target for many diseases. Significant efforts are being developed to identify specific modulators of autophagy, which will aid in designing combinatorial therapeutic strategies that will allow significant improvements in regenerative medicine.

Título: Autophagy in Stem Cell Maintenance and Differentiation electronic resource] edited by Bhupendra V. Shravage, Kursad Turksen.

Edición: 1st ed. 2023

Editorial: Cham Springer International Publishing Imprint: Springer 2023.

Descripción física: VIII, 288 p. 41 illus., 34 illus. in color. online resource.

Mención de serie: Stem Cell Biology and Regenerative Medicine 2196-8993 73

Documento fuente: Springer Nature eBook

Contenido: Assays for monitoring autophagy in stem cells -- Autophagy in Stem Cell Maintenance and Differentiation -- Autophagy in Embryonic stem cells and Neural stem cells -- Autophagy in Germline Stem Cells -- The role of autophagy in the regulation of hematopoietic stem cells -- Autophagy in Muscle Stem Cells -- Autophagy in Intestinal Stem Cells -- The autophagy lysosomal pathway: friend or foe in adult neural stem cells? -- Autophagy in Mesenchymal Stem Cell-based therapy -- Autophagic control of stem cells differentiation into osteogenic lineage- Implications in bone disorders -- Autophagy in Cancer Metastasis.

ISBN: 9783031173622 978-3-031-17362-2

Materia: Cáncer Stem cells. Cytology. Developmental biology. Cancer Stem Cells. Cell Biology. Developmental Biology and Stem Cells.

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Entidades: SpringerLink (Online service)

Enlace a formato físico adicional: Printed edition 9783031173615 Printed edition 9783031173639 Printed edition 9783031173646

Punto acceso adicional serie-Título: Stem Cell Biology and Regenerative Medicine 2196-8993 73.
