

bHLH Transcription Factors in Development and Disease

Edited by

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The development of various tissues and cell types each with a specific structure and function is a highly complex process that requires precisely regulated gene expression. Among the various transcription factors that regulate developmental processes, arguably, the basic helix-loop-helix (bHLH) superfamily play a prominent role in the establishment of tissue-specific gene expression programs. Moreover, these factors also play a role in tissue maintenance and homeostasis. This volume of *Current Topics in Developmental Biology* brings together our current knowledge on the structure, function and involvement of bHLH transcription factors in development and in human disease. bHLH factors are vastly recognized for their diverse roles in developmental processes and their dysfunction underlies various human pathologies. Each chapter is authoritatively written by a leading expert in the field and extensively discusses the aspects of this huge and diverse field.

KEY FEATURES:

- Contributions are from leading researchers in the field of biomedical research
- The volume provides comprehensive and state of the art reviews on bHLH transcription factors

Cover images:

Top left: *Myf5*^{+/+} E11.5 embryo. Skeletal myogenesis is initiated with an anlagen prior to the emergence of the self-renewing stem cell population. Chapter 1, figure 1. Corsai and Tajbakhsh.

Top right: Limb phenotypes of the mouse *Rim1* mutant, a model of human partial trisomy distal 4q. Chapter 3, figure 3. Tamura, Amano & Shiroishi.

Bottom left: Secondary structure and comparative model of MyoD. The two alpha helices (shown in red and blue) interact with DNA (yellow). This protein model was created using Visual Molecular Dynamics software (VMD 1.9.1). Image provided by Avinash Bahrivani and Reshma Taneja.

Bottom right: Immunostaining of differentiating skeletal muscle cells with anti-MHC antibody (red). Nuclei are stained with DAPI (blue). Image provided by Dewaki Kher and Reshma Taneja.



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