1. Record Nr. UNINA9910254543003321

Autore	Shapiro Frederic
Titolo	Disordered Vertebral and Rib Morphology in Pudgy Mice : Structural Relationships to Human Congenital Scoliosis / / by Frederic Shapiro
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-43151-X
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (IX, 123 p. 20 illus., 15 illus. in color.)
Collana	Advances in Anatomy, Embryology and Cell Biology, , 2192-7065 ; ; 221
Disciplina	617.375
Soggetti	Medical genetics Anatomy, Comparative Biology - Technique Medical Genetics Animal Anatomy Experimental Organisms
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	I. INTRODUCTION -- II. MATERIALS AND METHODS -- 1. Source, distribution, and ages of pudgy and non-affected mice. - 2. Whole mount preparations -- 3. Radiographic studies -- 4. Histologic studies -- 5. Computerized three-dimensional reconstructions -- 6. Previous studies on chick vertebral development and human congenital scoliosis -- III. RESULTS -- 1. Gross appearance -- 2. Whole mount appearances -- 3. Radiographic studies -- 4. Histology studies: vertebrae, ribs, intervertebral discs and ganglia -- 5. Computerized three-dimensional reconstructions -- 6. Chick embryo vertebral development -- 7. Radiology and histopathology of human congenital scoliosis spine -- IV. DISCUSSION -- ion -- 3. The pudgy mouse -- 4. Genetic influences on axial development; mutations identified in mouse models with vertebral deformation -- 5. Congenital scoliosis (human); its similarity with pudgy mouse vertebral abnormalities -- 6. Pathogenesis of pudgy and human congenital scoliosis based on histopathologic studies.-V. CONCLUSIONS -- 1. Implications of pudgy vertebral abnormalities for biologic research -- 2. Implications of pudgy vertebral abnormalities

for clinical patient treatment. .

Sommario/riassunto

This book presents results obtained from the whole mount preparations, radiological, and histological studies of 60 pu/pu and pu/+ mice from late embryo until 3 months of age. Most mice were in the embryo to 6 week age group where vertebral developmental changes are most marked. Although vertebral abnormalities have been identified as due to mutations in the delta-like 3 (Dll3) gene, it is evident that each mouse has differing structural abnormalities. The disorder is analogous to human congenital scoliosis, a common variant of which is spondylocostal dysplasia. The histological studies presented in this book include plastic embedded sections which allow for high level resolution not only of vertebrae, intervertebral discs, and ribs but also of associated spinal cord, nerve roots and ganglia. In addition an overview of embryo and neonatal development in mouse, chick and human vertebrae is provided to better assess how and where deviant pathoanatomy occurs. The book discusses the possible variables involved in creating final deformity beyond the gene abnormality itself.