Development of the neural tube and mesoderm in the chick embryo

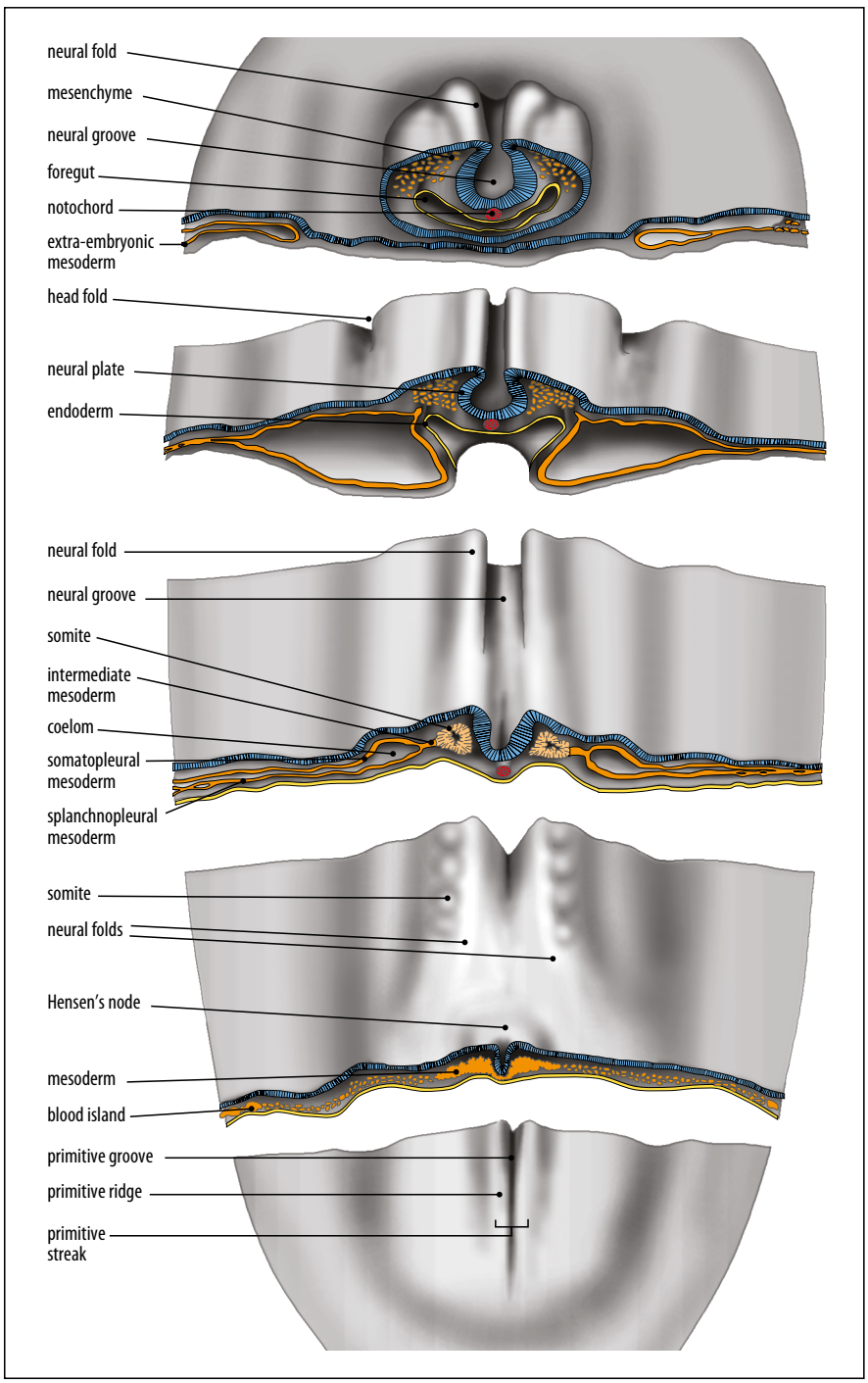

Fig. S3.1 Development of the neural tube and mesoderm in the chick embryo. Once the notochord has formed, neurulation begins in an anterior to posterior direction. The figure shows a series of sections along the antero-posterior axis of a chick embryo. Neural tube formation is well advanced at the anterior end (top two sections), where the head fold has already separated the future head from the rest of the blastoderm and the ventral body fold has brought endoderm from both sides of the body together to form the gut. During neurulation, the neural plate changes shape: neural folds rise up on either side and form a tube when they meet in the midline. The mesenchyme in this region will give rise to head structures. Further back (middle sections), in the future trunk region of the embryo, notochord and somites have formed and neurulation is starting. At the posterior end, behind Hensen's node (bottom section), notochord formation, somite formation, and neurulation have not yet begun. The mesoderm internalized through the primitive streak starts to form structures appropriate to its position along the antero-posterior and dorso-ventral axes. For example, in the future trunk region, the intermediate mesoderm will form the mesodermal parts of the kidney, and the anterior splanchnopleural mesoderm will give rise to the heart. The body fold will continue down the length of the embryo, forming the gut and also bringing paired organ rudiments that initially form on each side of the midline (e.g. those of the heart and dorsal aorta) together to form the final organs lying ventral to the gut. Blood islands, from which the first blood cells are produced, form from the ventral-most part of the lateral mesoderm. *Illustration after Patten, B.M.:* Early Embryology of the Chick. *New York, Mc Graw-Hill, 1971.*

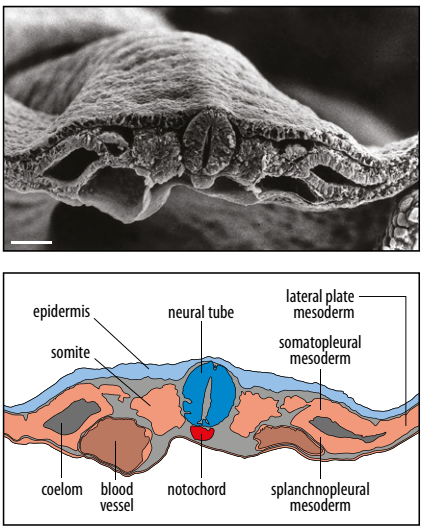

Fig. S3.2 Section through chick embryo showing somites, neural tube, and notochord. Upper panel: Scanning electron micrograph. Blocks of somites can be seen adjacent to the neural tube, with the notochord lying beneath it. The lateral plate mesoderm flanks the somites and has become divided into two layers by the formation of the coelom. Lower panel: interpretative diagram indicating the structures in panel above. Scale bar = 0.1 mm. *Photograph courtesy of J. Wilting.*