

Review of: "Is gastrulation the most important time in your life?"

Herve Acloque

Potential competing interests: No potential competing interests to declare.

This point of view by Marta Linde, which summarises gastrulation concisely and clearly, raises the question of the origin of the cells of the embryonic layers. It challenges the postulate that the mesendoderm is derived solely from cells internalized during gastrulation. This point is supported by the recent discovery of neuromesodermal progenitor cells (NMP), which, located at the level of Hensen's node, contribute to the formation of the axial and paraxial mesoderm.

It supports previous discoveries that have also shown that gastrulation is not the only source of cells that will contribute to the embryo's mesoderm and endoderm. This is the case of neural crest cells, which can be seen as a "secondary gastrulation" and contributes to the mesoderm of the embryo. This is also true for the definitive endoderm, composed partially of cells from the visceral endoderm.

It is likely and exciting that recent transcriptomics studies and cell tracing approaches will enrich our knowledge of the diversity of mechanisms driving the genesis of the cells composing the different germ layers.

Just a small criticism: using the term pluripotent to characterize NMP cells may be equivocal. Pluripotency refers to the potential of a cell to differentiate into any of the three germ layers.