The function of mitogen activated protein kinases in zebrafish development

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Stellingen

Behorende bij het proefschrift

'The function of Mitogen Activated Protein Kinases in zebrafish embryogenesis'

1. The zebrafish genome encodes for all of the mapk subfamilies (this thesis)

2. Knockdown of ERK1 or ERK2 have different effects on cell migration processes during zebrafish development (this thesis)

3. ERK2 is the active MAPK in the margin at the onset of epiboly and essential for epiboly progression and subsequent development (this thesis)

4. ERK1 and ERK2 have common and distinct downstream target-genes during early developmental stages, thereby underlining the distinct functions of ERK1 and ERK2 MAPKs in vertebrate embryogenesis (this thesis)

5. In the prelapsarian days of signal transduction, pathways were simple, everything was linear, and life was good. However, the unfortunate intervention of reality has clouded that wonderfully innocent view by adding layer upon layer of complexity to what was once neat, clean and relatively easy to think about.
   Yaffe and White, Genome Biology (2007)

6. Convergence and extension are separate morphogenetic cell movements during (zebrafish) gastrulation.
   Bakkers et al., Development (2005); Glickman et al., Development (2003); Dagget et al., Current Biology (2004)

7. Gastrulation provides a unique developmental system to study cell movements *in vivo* in a fairly simple cellular context.
   Montero and Heisenberg, TRENDS in Cell Biology (2004)

8. The study of embryonic cell migration may lead to new insights into processes in which cell migration plays an essential role, e.g.; infection, wound healing and metastasis.
   Amatruda et all., Cancer Cell (2002); Solnica-Krezel, Current Biology (2005); Condeelis and Pollard, Cell (2006)

9. Door de ontwikkeling van systems biology is het ontstaan van een evoluerende digitale cel nabij

10. Objectiviteit, doorzettingsvermogen en creativiteit zorgen voor een hoog oplossend vermogen

11. Sportieve inspanning leidt tot geestelijke ontspanning