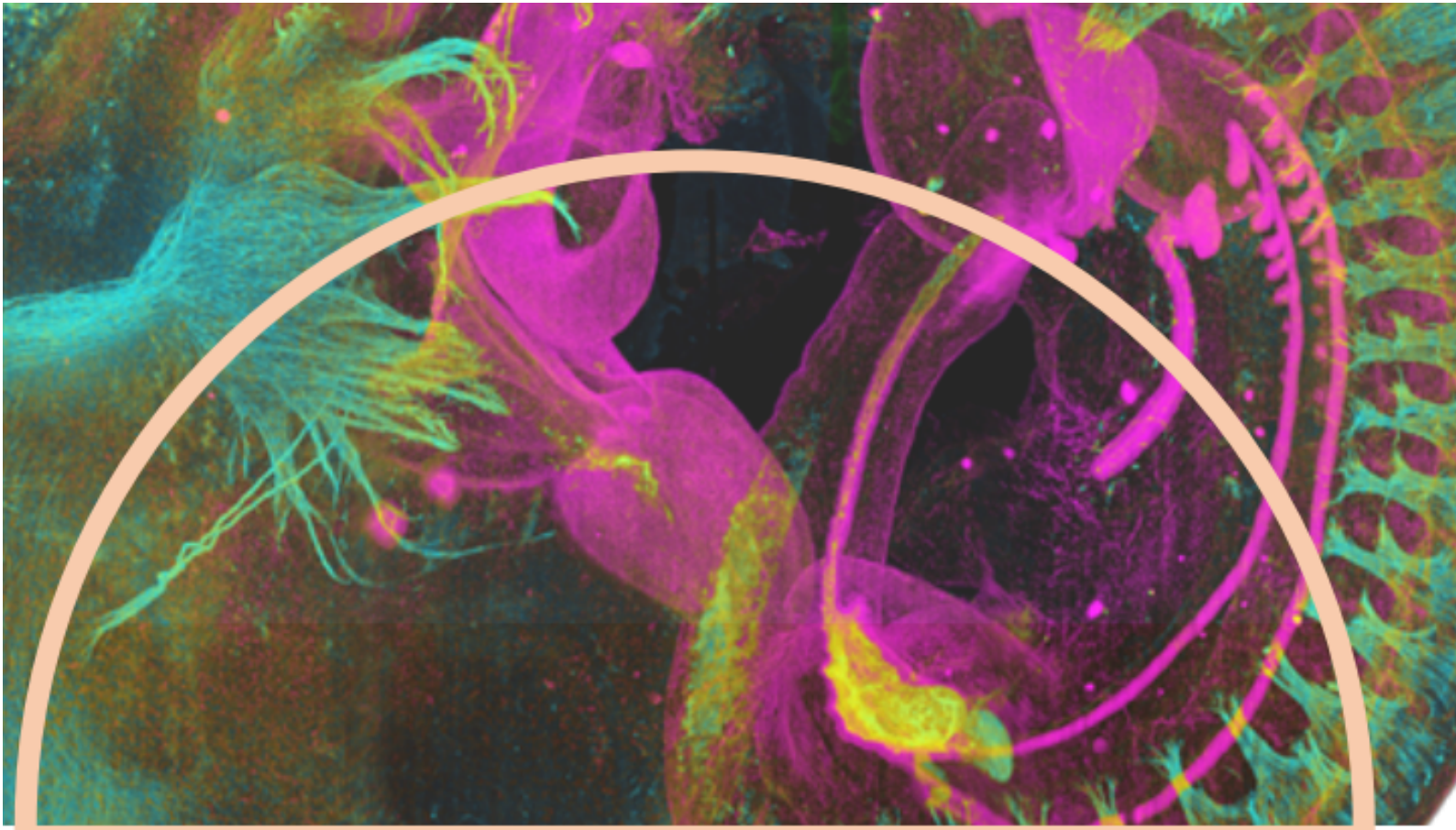

SEBD

# 17th Spanish Society for Developmental Biology Meeting

18th-20th November 2020

VIRTUAL

# ABSTRACT BOOK

# Friday November 20th

| | | |
|---|---|---|
| **9:00 – 10:45** | **Session 7** | ***Evo-Devo*** |
| | *Chairs: Fernando García-Moreno / Isabel Almudi* | |
| **09:00 – 10:0** | **Naoki Irie (University of Tokio)** Developmental robustness may bias macro-evolutionary outcome | |
| 10:00 – 10:15 | **Paula Miramón:** Potential adult stem cells give rise to both germinal and somatic lineages in the sea anemone Nematostella vectensis | |
| 10:15 – 10:30 | **Thomas Spruce:** From regulating alternative splicing in differentiation to restricting placental growth: the evolutionary path of Mbnl3 in Eutherian mammals | |
| 10:30 – 10:45 | **Flash talks:**<br>**Martin Estermann:** Single cell transcriptomics reveals a divergent pattern of lineage specification in embryonic chicken gonads<br>**Irepan Salvador-Martinez:** CeLaVi: A Cell Lineage Interactive Visualisation tool<br>**Cristian Cañestro:** Deconstruction of the cardiopharyngeal gene network in appendicularians reveals that their free-living style is not a primitive urochordate condition | |
| 10:45 – 10:55 | **DrosAfrica: Building an African biomedical research community using *Drosophila*** (Lola Martín-Bermudo) | |
| 10:55 – 12:00 | Break + **Poster Session** + *Remo Room Session 7* | |
| **12:00 – 13:15** | **Session 8** | ***Regeneration*** |
| | *Chairs: Maria Losada-Pérez / Isabel Almudi / Sergio Casas-Tintó* | |
| **12:00 – 12:30** | **Florenci Serras (University of Barcelona )** ROS, Stress and Regeneration | |
| 12:30 – 12:45 | **Daniela Romao:** Coupling inflammation to maturation defects | |
| 12:45 – 13:00 | **Filipa Simões:** Macrophages directly contribute collagen to scar formation during zebrafish heart regeneration and mouse heart repair | |
| 13:00 – 13:15 | **Flash talks:**<br>**María Ester De la Cruz Crespillo:** The role of Meis transcription factors in the epicardium<br>**Alejandro Castilla-Ibeas:** Absence of digit tip regeneration in a mouse model lacking nails<br>**Helena García-Castro:** Studying stem cells and differentiation with ACME dissociation and SPLIT-seq<br>**Elena Gracia-Latorre:** Development, Regeneration & Tumorigenesis: multi-tasking of a single Wg enhancer | |
| **13:15 – 14:15** | **Prizes and Closing Session** | |
| 14:15 – 15:30 | *Remo Room Session 8* | |
| 17:15 – 18:30 | *Remo Room AFTER Session 8* | |

# Poster Abstracts

## P001 - P115

P105 Flashtalk

## Absence of digit tip regeneration in a mouse model lacking nails

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Epimorphic regeneration is a type of multi-tissue regeneration defined by the formation of a blastema. In contrast to amphibians, which can regenerate their entire limbs, mammals can only regenerate the distal tip of their digits, hence investigating the mechanisms involved is of maximum interest for regenerative medicine. Interestingly, in mice and humans this regeneration associates with the nail organ, particularly with the Wnt/β-catenin active nail matrix. Nails are ectodermal appendages of the dorsal tip of the digits. Their development reflects the dorso-ventral polarity of the limb, established in the early limb bud ectoderm by the interaction of three central molecules. En1, expressed in the ventral ectoderm, restricts Wnt7a to the dorsal ectoderm. Wnt7a induces Lmx1b, the dorsal determinant, in the subjacent mesoderm. Lmx1b-null mice display bi-ventral distal limbs and die perinatally due to multisystemic defects. Recent studies have identified two Lmx1b limb-specific enhancers named LARM1 and LARM2. CRISPR/Cas9-mediated deletion of these two enhancers (LARM1/2$^{-/-}$) yielded mice with a limb-restricted Lmx1b-null phenotype, but no other systemic defects. LARM1/2 null mutants show absence of nails in their digit tips, providing an opportunity to directly test the involvement of the nail in digit tip regeneration. As expected, LARM1/2 mutants fail to regenerate their digit tips, as histological and µCT analyses demonstrate. Importantly, disregarding the lack of regeneration, a blastema does form at the tip of the LARM1/2 stump. Our preliminary results point to a reduction of proliferation in the LARM1/2 blastema compared to wild-type, and to an absence of Wnt/β-catenin active epidermis in mutants, as an explanation of the regenerative failure. Our results confirm that bi-ventral digits do not regenerate their digit tips and set the LARM1/2 mutant as a useful model to investigate the mechanisms of regenerative blastema, with the aim of enhancing regeneration.