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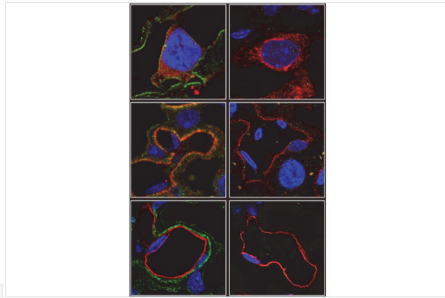
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Volume 69 (2023) Issue 1 Pages 32-40

A possible function of *Nik*-related kinase in the labyrinth layer of delayed delivery mouse placentas

Hiroshi YOMOGITA, Hikaru ITO, Kento HASHIMOTO, Akihiko KUDO, Toshiaki FUKUSHIMA, Tsutomu ENDO, Yoshikazu HIRATE, Yoshihiro AKIMOTO, Masayuki KOMADA, Yoshiakira KANAI, Naoyuki MIYASAKA, Masami KANAI-AZUMA

In mice and humans, *Nik*-related protein kinase (*Nrk*) is an X-linked gene that encodes a serine/threonine kinase belonging to GCK group 4. *Nrk* knockout (*Nrk* KO) mice exhibit delayed delivery, possibly due to defective communication between the *Nrk* KO conceptus and its mother. However, the mechanism of delayed labor remains largely unknown. Here, we found

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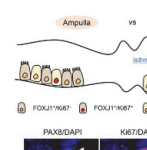
Nik-related protein kinase (*Nrk*) is an X-linked gene encoding a serine/threonine kinase belonging to GCK group 4. *Nrk*-knockout (*Nrk*-KO) mice exhibit delayed delivery. However, the mechanism of delayed labor remains largely unknown. Yomogita et al. found that serum progesterone (P4) and placental lactogen (PL-2) concentrations during late pregnancy were higher in pregnant females with *Nrk*-KO conceptus than in wildtype females (Yomogita et al. A possible function of *Nik*-related kinase in labyrinth layer of mouse placentas of delayed delivery. pp 32–40). These findings suggest that *Nrk*-KO mice exhibit delayed delivery due to the increase in P4 concentrations because of PL-2 hypersecretion. Moreover, *Nrk* was expressed in trophoblast giant cells and syncytiotrophoblast-2 (SynT-2) in the labyrinth layer of the mouse placenta. In the human placenta, *NRK* is expressed in Syn-T of villi. Similar to mouse *Nrk*, human *NRK* may significantly affect placentation in evolutionary biology.

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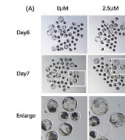
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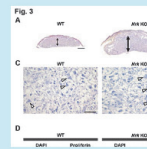
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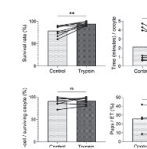
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