



Microchimerism And Maternal Health



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What's fetal cells and what they do ?

- fetal cells have stem-like properties that may allow them to provide maternal benefits. It's fitness interest of the offspring to enhance maternal survival and contribute to maintenance of the maternal body. It also work on reducing age of mothers. Additionally, fetal microchimeric phenotypes may be under selective pressure to contribute to maternal health through enhancing wound healing. This predicts that fetal cells should be found at the sites of wounds and that their presence should be associated with better outcomes for maternal health.

Fetal cells are associated with wound healing/response to injury

Several studies suggest that fetal cells may play a role in maternal wound healing. Murine injury models have tracked fetal cells actively migrating to the site of injury in the maternal body,. Two of these injury models report clustering of fetal cells in relation to maternal blood vessels at sites of inflammation, suggesting participation in maternal angiogenesis. Additionally, in humans, fetal cells were identified in healed cesarean section scars and expressed markers of cytokeratin and collagen, suggesting that fetal cells actively participate in maternal wound healing.

Fetal cells are found in the brain

Maternal attachment and bonding are important for the health of the infant. "Maternal hormones" such as oxytocin and prolactin are released in the brain and play important roles in "letdown" contractions in breastfeeding, maternal milk supply, as well as maternal calm and interest in the offspring. The present framework suggests that selection may have favored fetal microchimeric phenotypes that can manipulate maternal brain function to enhance maternal resource transfer and attachment to offspring.

Fetal cells are found in the breast

- Mother's milk provides calories, nutrients, and immunological protection for offspring, however, lactation is costly for the mother. This means that there can be conflict over maternal milk supply, with offspring interests favoring higher milk supply than what is optimal for the mother. If fetal cells are able to migrate to the breast and up-regulate milk production either through producing factors that manipulate maternal mammary glands or by differentiating into mammary gland themselves, this could benefit offspring fitness. This predicts that the presence of fetal cells in the breast should be associated with higher levels of milk production or enhanced quality of mother's milk and could be associated with negative health outcomes for the mother in some cases.

References

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