

Possible role of placental CD100, CD72 and CD45 molecules in human miscarriage

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The precise mechanism for recurrent miscarriage is unclear. A lot of metabolic alterations are involved in the missed intercommunication between mother and its foetus, causing their reciprocal intolerance.

The identification of new molecules involved in pregnancy loss represents the main objective of our study. We analysed the semaphorin CD100, its natural receptor CD72 and the glycoprotein CD45, physically and functionally associated to CD100 in the placental tissues from recurrent miscarriages by real-time PCR, western blotting and immunohistochemistry.

Placental tissue was obtained during surgical uterine evacuation in 72 caucasian women with early spontaneous pregnancy loss between 8th and 12th week of gestation and classified in four groups defined as first, second, third and fourth miscarriages. Other two normal placental groups were recruited: a) first trimester placentas (n = 18), matched for gestational age with placentas from spontaneous pregnancy loss; b) third trimester placentas (n = 6) at 38-40 weeks of gestation. We demonstrated that CD72, CD45 and CD100 mRNA were detectable in placental tissues with different expression in normal and pathological conditions. In addition, we demonstrated that CD72 and CD45 molecules were expressed in foetal macrophages and that their protein levels were especially deregulated in first and second miscarriages at about 10 weeks of gestation. On the contrary, CD100 cleaved protein appeared to be absent in placenta. In conclusion, our findings underline a possible role for CD100, CD72 and CD45 molecules in recurrent miscarriages, showing an important foetal involvement in the occurring of pregnancy loss.

Keywords: CD100, CD72, CD45, placenta, human, miscarriage