Cell membrane regionalization in early mouse embryos as demonstrated by 5'-nucleotidase activity

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The distribution of 5'-nucleotidase activity in pre-implantation mouse embryos is studied by means of a cytochemical method adapted from Uusitalo & Karnovsky (1977). The enzyme activity is detected from the 4-cell stage up to the morula stage, on discrete patches of the cell membrane between blastomeres. Appropriate controls show that this distribution is not a localization artifact due to selective retention of the enzyme reaction product in the narrow interblastomeric spaces. In early blastocysts, as the blastocoel expands the enzyme activity on its lining disappears. The external surface of the trophectoderm in early blastocysts lacks any enzyme activity, whereas in late blastocysts a strong enzyme activity is detected at the embryonic trophectoderm, decreasing in intensity towards the opposite pole of the embryo. These results are compared to previous observations by other authors and the differences are mainly ascribed to differences in the cytochemical procedure employed. We conc