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Mini-Review

The epithelial–mesenchymal transition: new insights in signaling, development, and disease

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Abstract

The conversion of an epithelial cell to a mesenchymal cell is critical to metazoan embryogenesis and a defining structural feature of organ development. Current interest in this process, which is described as an epithelial–mesenchymal transition (EMT), stems from its developmental importance and its involvement in several adult pathologies. Interest and research in EMT are currently at a high level, as seen by the attendance at the recent EMT meeting in Vancouver, Canada (October 1–3, 2005). The meeting, which was hosted by The EMT International Association, was the second international EMT meeting, the first being held in Port Douglas, Queensland, Australia in October 2003. The EMT International Association was formed in 2002 to provide an international body for those interested in EMT and the reverse process, mesenchymal–epithelial transition, and, most importantly, to bring together those working on EMT in development, cancer, fibrosis, and pathology. These themes continued during the recent meeting in Vancouver.

Discussion at the Vancouver meeting spanned several areas of research, including signaling

pathway activation of EMT and the transcription factors and gene targets involved. Also covered in detail was the basic cell biology of EMT and its role in cancer and fibrosis, as well as the identification of new markers to facilitate the observation of EMT in vivo. This is particularly important because the potential contribution of EMT during neoplasia is the subject of vigorous scientific debate (Tarin, D., E.W. Thompson, and D.F. Newgreen. 2005. *Cancer Res*. 65:5996–6000; Thompson, E.W., D.F. Newgreen, and D. Tarin. 2005. *Cancer Res*. 65:5991–5995).

Abbreviations used in this paper: BMP7, bone-morphogenic protein 7; EGFR, EGF receptor; EMT, epithelial–mesenchymal transition; ER, estrogen receptor; FSP1, fibroblast-specific protein 1; GSK, glycogen synthase kinase; ILK, integrin-linked kinase; MET, mesenchymal–epithelial transition; MMP, matrix metalloproteinase; OSE, ovarian surface epithelium; PARP-1, poly-ADP-ribose polymerase 1; ROS, reactive oxygen species; siRNA, small interfering RNA.

Angiogenesis.. *Cancer Res*. 66: 9886-9894 [Abstract] [Full Text]
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