

Title (en)
MICROFLUIDIC CHANNEL EMBRYO AND/OR OOCYTE HANDLING, ANALYSIS AND BIOLOGICAL EVALUATION

Title (de)
BIOLOGISCHE EVALUIERUNG, ANALYSE UND MANIPULATION VON EMBRYOS UND/ODER OVOZYTEN IN EINEM MIKROFLÜSSIGKEITSKANAL

Title (fr)
EVALUATION BIOLOGIQUE, ANALYSE ET MANIPULATION D'OVOCYTES ET/OU D'EMBRYONS DANS UN CANAL MICROFLUIDIQUE

Publication
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Application
EP 01933192 A 20010508

Priority

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Abstract (en)
[origin: WO0188087A2] Microfluidic embryo scaled channels (14) for handling and positioning embryos provide the opportunity to evaluate and treat embryos in improved manners. Fluid flow is used to move and position embryos within microfluidic channels and channel geometrics may be used to place embryos at specific locations. Surface properties and compliance (deformation) properties of embryos are evaluated as a predictor of viability. The microfluidic channels provide the opportunity for fine controls of pressure to conduct various evaluations at forces slightly below which damage to embryos is known to occur. Measurement of the distance and/or which embryos roll in a same pressure gradient microfluidic channel provides information, with healthy embryos traveling slower or a shorter distance as they demonstrate more stiction to channel walls. Positioned at a constriction (14a, 14b, 24, 26), health embryos also appear to deform less than unhealthy embryos that are more readily pulled into a constriction. In addition, healthy embryos appear to resume their shape better. Fluid from microfluidic channels is easily collected downstream without altering the embryo environment, providing a better opportunity for chemical analysis of fluid chemical analysis than convention manual handling and sampling techniques. Zona pellucida removal of mammalian embryos is achieved as embryos are moved through flow to a precise location where lysing agent can be washed over the embryo to achieve zona removal. Cumulus removal is realized with a series of constrictions to cut cumulus followed by fluid flows to remove cut cumulus from the embryo.

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