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A holistic approach to MSC culture process design

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With the growth of the cell-based therapy industry, one of the key challenges in the field is the successful preservation of these therapies in order to enable centralized manufacture of an 'off-the-shelf' allogeneic product. Data from our work on human mesenchymal stem cells (hMSCs) is now emerging which shows the impact that changes in downstream processing (e.g. cell harvesting from microcarriers, washing and re-suspending cells in cryopreservation medium) can have on cell recovery post-thaw despite a consistent freezing process being utilized. The idea of optimizing each unit operation in isolation will therefore be questioned and the necessity for end-to-end process design discussed.

Biography

Karen Coopman is a Senior Lecturer in Biological Engineering at Loughborough University. Based at the Centre for Biological Engineering, her research team focuses on "the manufacture of cell-based therapies, tackling issues from scale-up to cryopreservation". She is also the Director of the Loughborough led EPSRC/MRC Centre for Doctoral Training in Regenerative Medicine and a Member of the BBSRC led Bioprocessing Research Industry Club Steering Group.

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