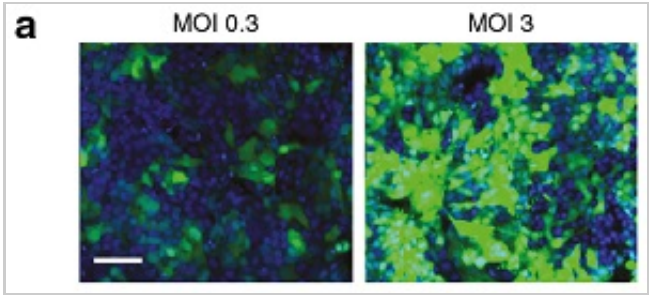
Molecular Therapy — Methods & Clinical Development



Featured Article Image

"Oncolytic virus" strategy eliminates undifferentiated cells.

The risk of formation of tumors, including teratomas and cancers originating from contaminating undifferentiated and transformed cells, represents the most critical obstacle to the safe clinical application of human pluripotent stem cell (hPSC)-based regenerative medicine. This study represents the first demonstration of a novel “oncolytic virus” strategy that specifically and efficiently eliminates undifferentiated cells, thereby inhibiting *in vivo* teratoma formation after hPSC transplantation.

The figure demonstrates adenoviral gene transduction efficiency at an multiplicity of infection (MOI) of 0.3 or 3 one hour before cell transplantation, which was assessed by using a control replication-deficient adenoviral vector ubiquitously expressing *enhanced green fluorescent protein (EGFP)*. In the subsequent animal experiments, infection with each “conditionally replicating adenovirus that specifically target cancers using multiple factors” (m-CRA) ubiquitously expressing EGFP, *i.e., survivin*-resonsive m-CRA (Surv.m-CRA) or *telomerase reverse transcriptase (TERT)*-responsive m-CRA (Tert.m-CRA), at MOI 3 completely abolished *in vivo* tumor formation after hPSC implantation.

From Figure 5a in "Conditionally replicating adenovirus prevents pluripotent stem cell–derived teratoma by specifically eliminating undifferentiated cells."

See the full gallery of previously featured images on *MTM*'s Pinterest board.

Archiving notice: *Molecular Therapy – Methods & Clinical Development* is pleased to announce we are now fully indexed in PubMed and PubMed Central.

In this podcast, Editor-in-Chief Dr. Yuman Fong discusses how the new open access journal, ***Molecular Therapy — Oncolytics****,* fits into the *Molecular Therapy* family and provides a unique forum for work in the burgeoning fields of oncolytic virotherapy and T cell-based therapies. Click here to submit to or learn more about *Molecular Therapy — Oncolytics*.

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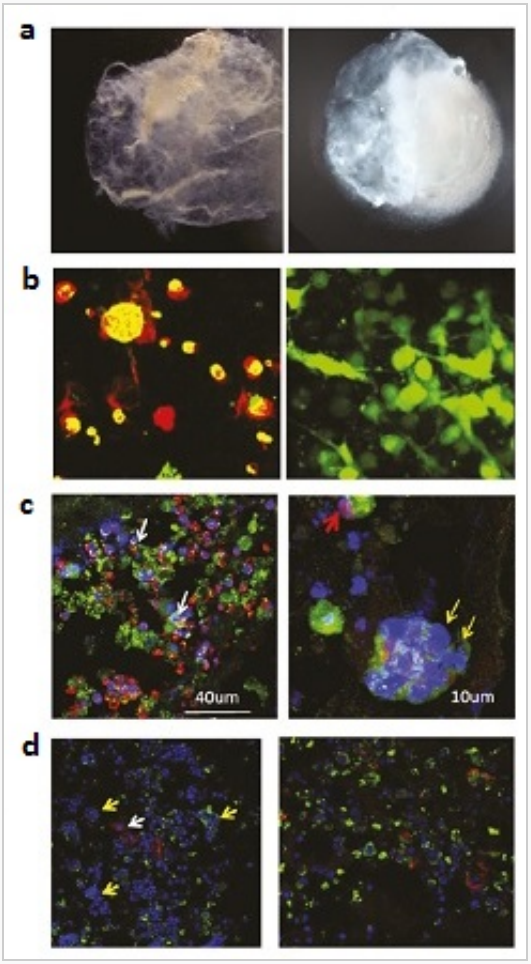
In Case You Missed It: Featured Image from the MT Family

From Molecular Therapy:

From a study published in *Molecular Therapy* (doi:10.1038/mt.2015.77), these fluorescent images demonstrate the feasibility of constructing a functional thymus organoid (**a**, right) by repopulating a decellularized thymus scaffold (**a**, left) with a mixture of isolated thymic epithelial cells (TECs, Epcam+) and bone marrow progenitor cells (CD45+). The three-dimensional microenvironment offered by the scaffold supports the survival (green, **b**), proliferation (Ki69+, **c**), and function (nurse cell clusters, yellow arrows, **c**) of TECs, as well as other stromal cells (CD31+ endothelial cells and Fibro+ fibroblasts in **d**). Cells cultured in absence of the matrix perished rapidly (red, **b**). This thymic bioengineering approach will help to modulate and revitalize thymus function.



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