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Medicina Regenerativa



modelo



Realidade?

Histórico de estratégias de Medicina Regenerativa

1869
Transplante
de pele

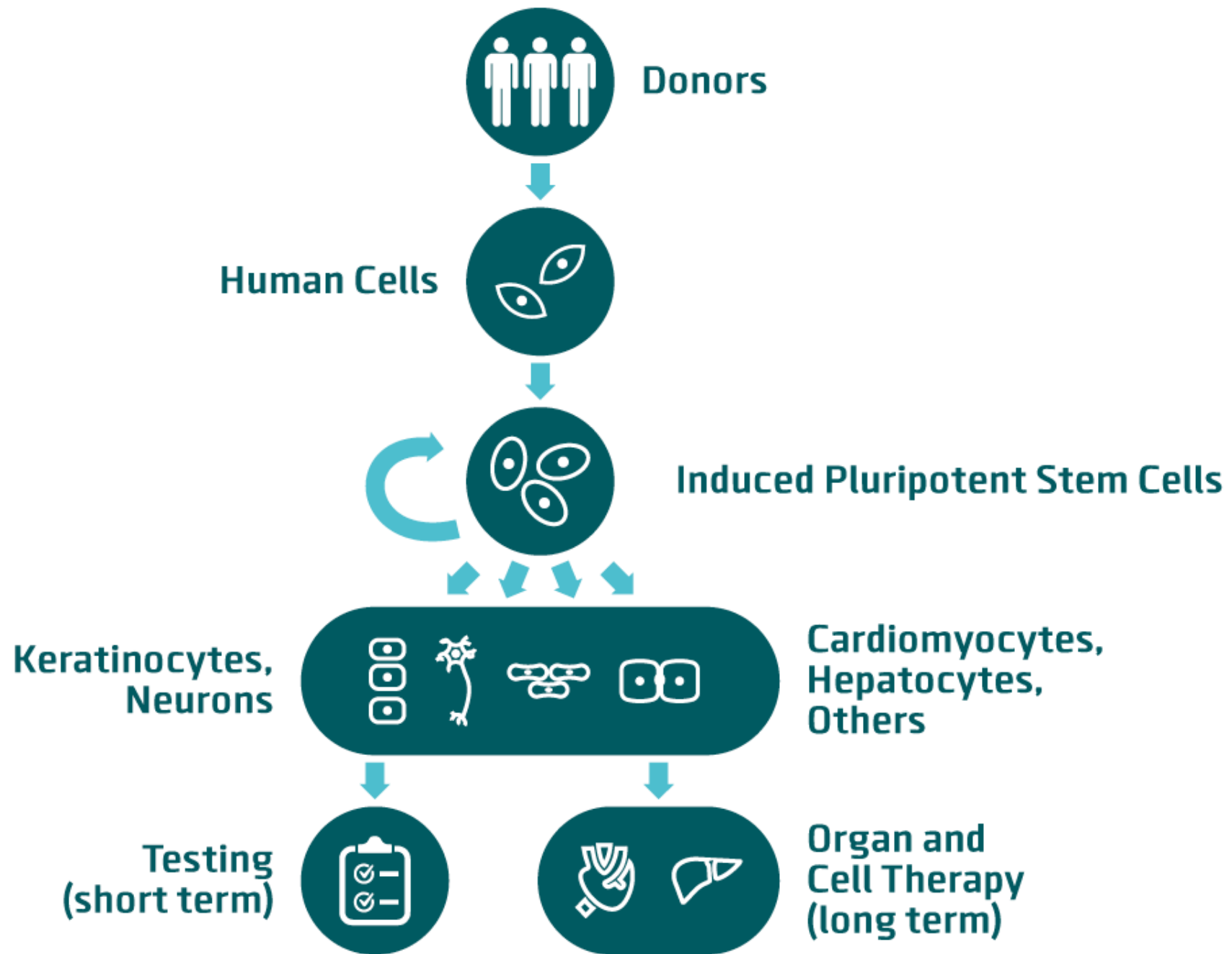
1966
Isolamento
das MSCs

1998
Isolamento de
ES humana

1969
Transplante
de medula

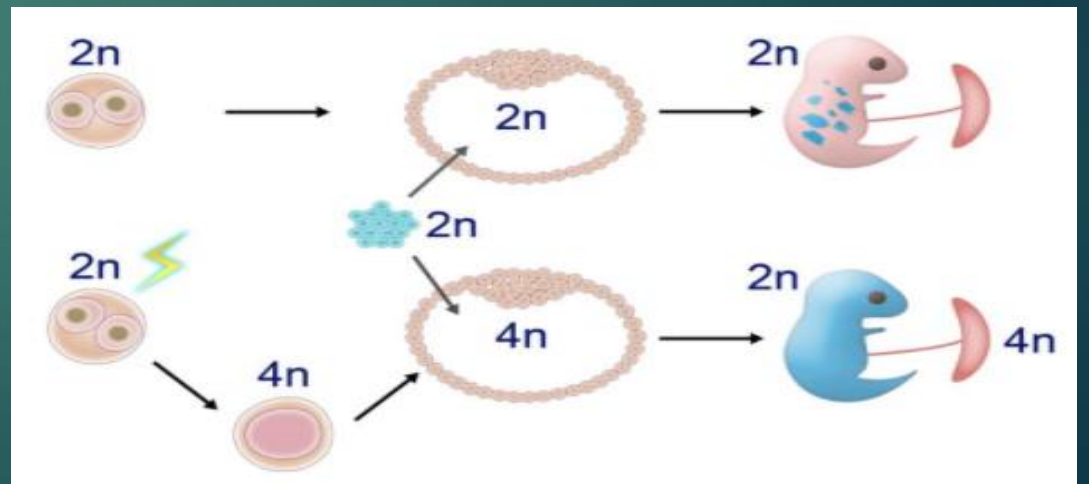
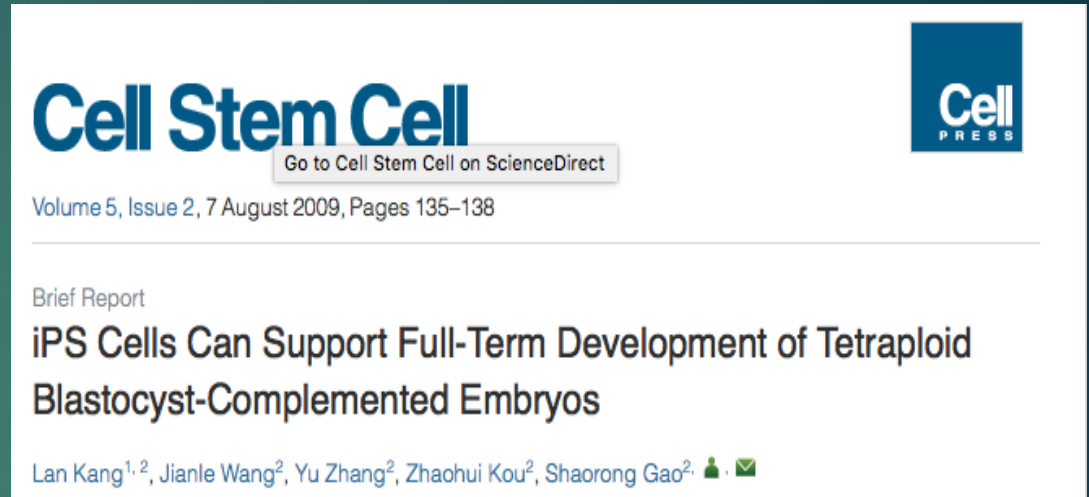
2006/7
Descrição das
iPS





Porque apostar em Medicina Regenerativa e com iPS?

- ausência de problemas éticos
- células estáveis com alta capacidade proliferativa
- alto potencial de diferenciação
- problema de compatibilidade potencialmente resolvido

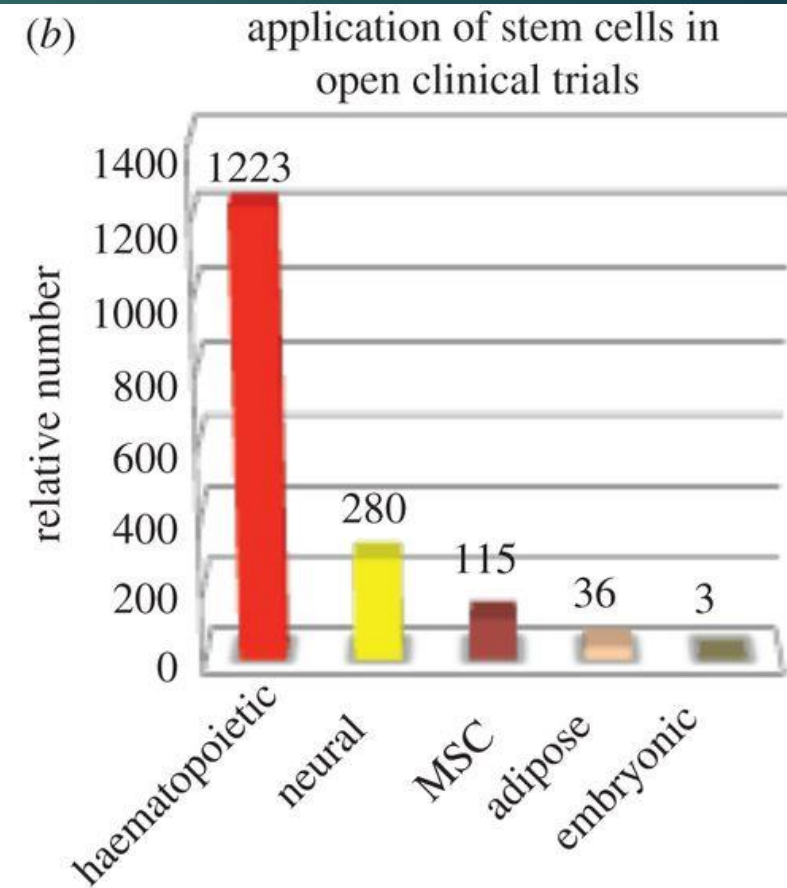


Comparação dos tipos celulares – aplicação clínica

(a)

characteristics	ESCs	iPSCs	SSCs
<i>in vitro</i> proliferation	very high	very high	limited
potency	pluripotent	pluripotent	multipotent or restricted
clinical application	induction necessary	induction necessary	directly transplantable
tumorigenicity	possible	possible	none
ethical issue	yes	no	no

(b)



Modified from Huan-Ting Lin, Makoto Otsu, Hiromitsu Nakauchi

Phil. Trans. R. Soc. B 2013 368 20110334; DOI: 10.1098/rstb.2011.0334. Published 19 November 2012

Primeiras abordagens Clínicas com iPS

EPR – Epitélio Pigmentoso da Retina



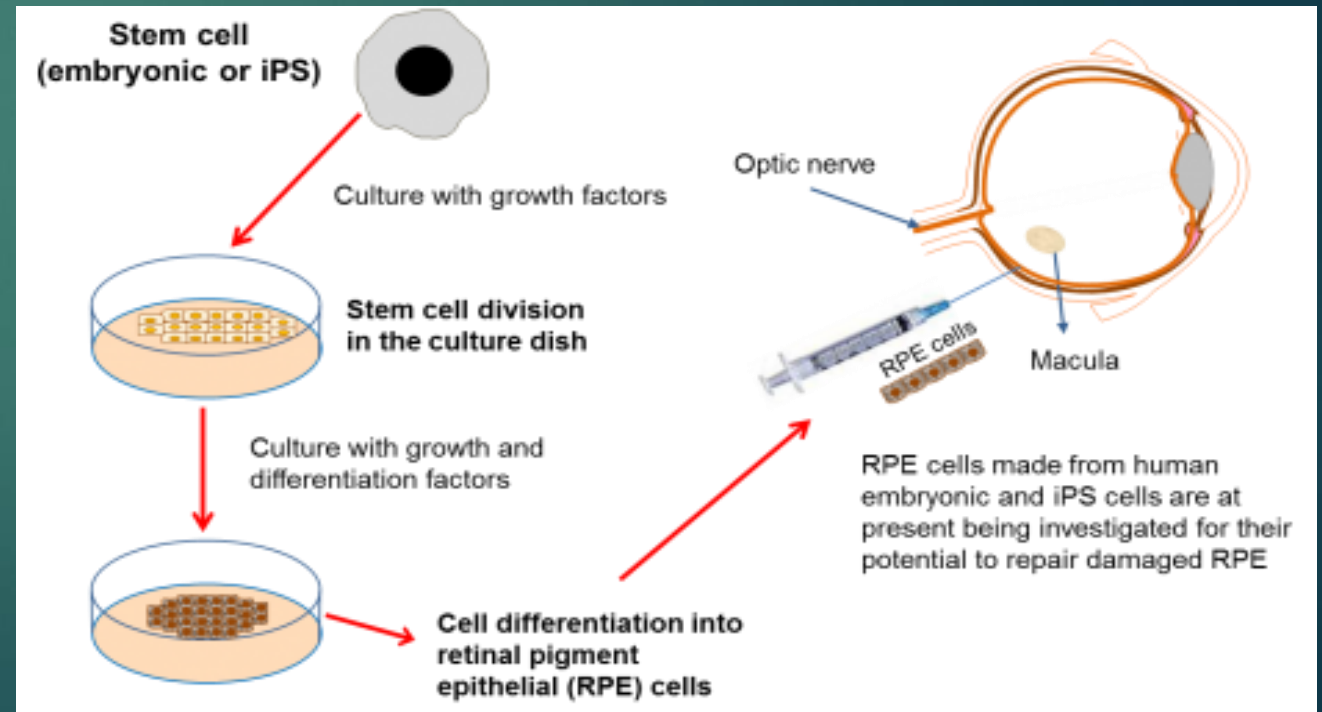
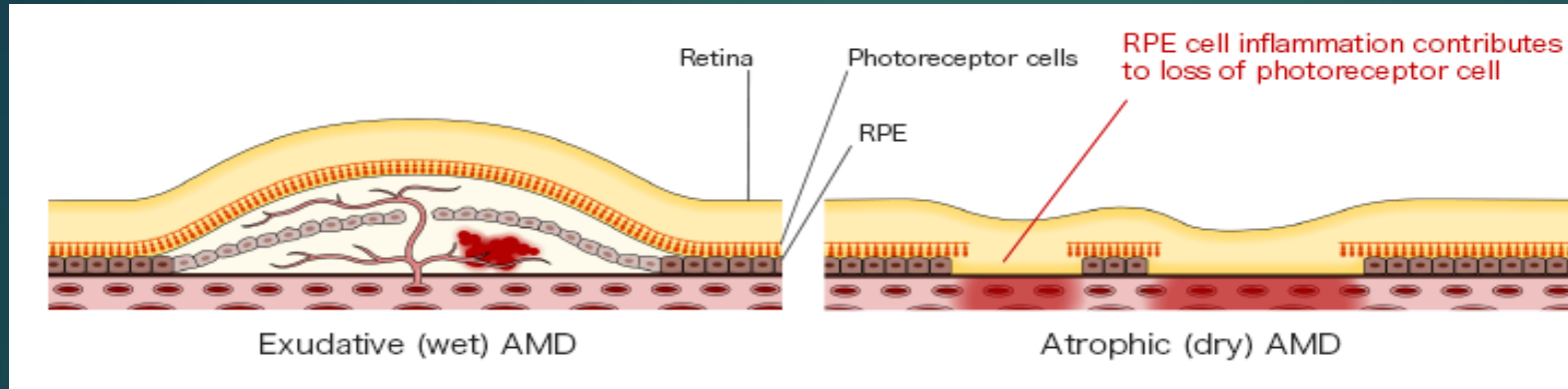
Células Beta - Insulina



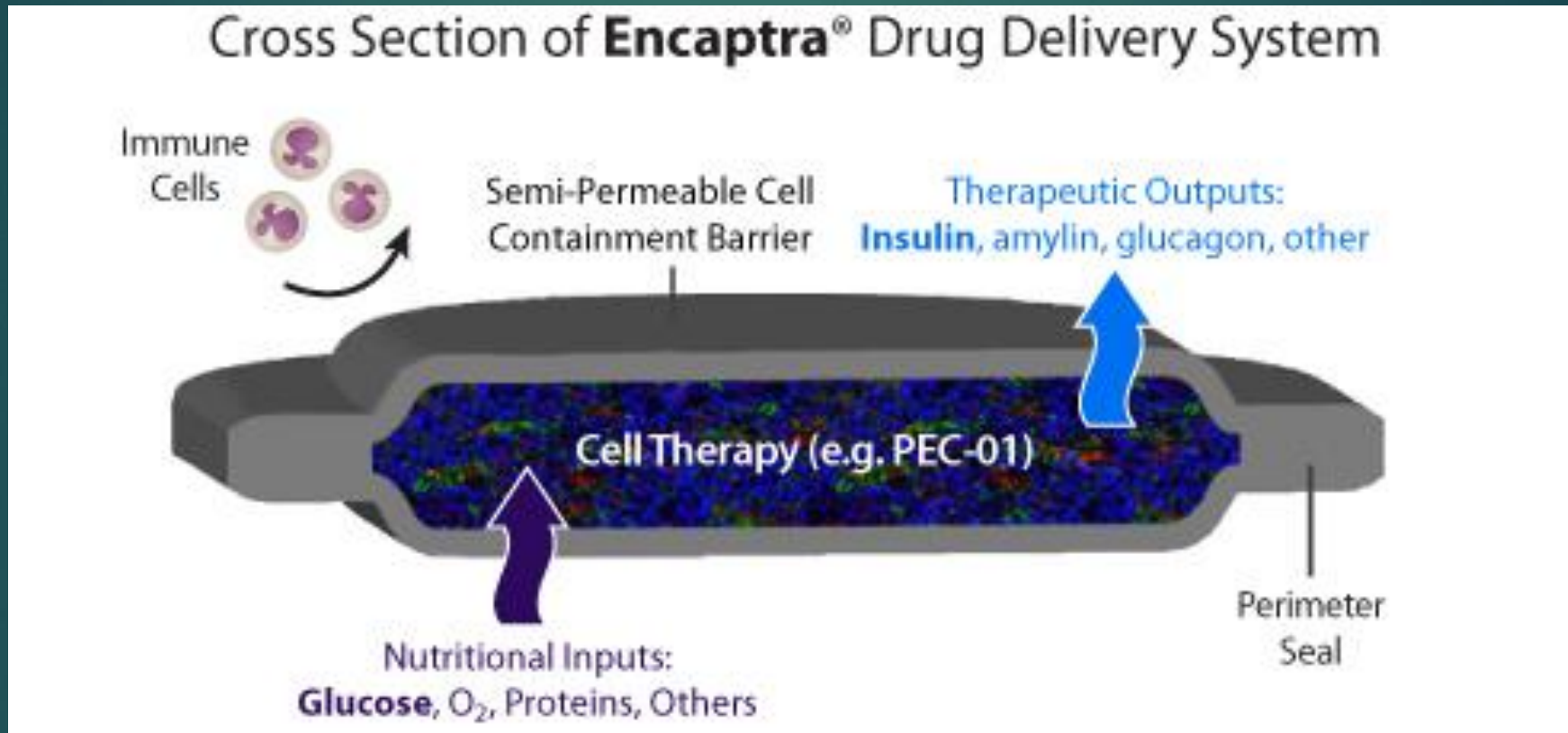
MSCs derivadas de iPS



EPR – Epitélio Pigmentoso da Retina



Células Beta - Insulina



Possibilidades

REVIEWS

Induced Pluripotent Stem Cells for Post-Myocardial Infarction Repair Remarkable Opportunities and Challenges

Pratik A. Lalit, Derek J. Hei, Amish N. Raval and Timothy J. Kamp



DOI <http://dx.doi.org/10.1161/CIRCRESAHA.114.300556>
Circulation Research. 2014;114:1328-1345
Originally published April 10, 2014

[Stem Cells Int.](#) 2016; 2016: 4869071.

PMCID: PMC4677260

Published online 2015 Nov 30. doi: [10.1155/2016/4869071](https://doi.org/10.1155/2016/4869071)

Human iPSC for Therapeutic Approaches to the Nervous System: Present and Future Applications

[Maria Giuseppina Cefalo](#),¹ [Andrea Carai](#),² [Evelina Miele](#),^{3,4} [Agnese Po](#),³ [Elisabetta Ferretti](#),⁵ [Angela Mastronuzzi](#),¹ and [Isabelle M. Germano](#)^{6,*}

[J Hepatol.](#) 2016 May;64(5):1068-75. doi: [10.1016/j.jhep.2016.01.004](https://doi.org/10.1016/j.jhep.2016.01.004). Epub 2016 Jan 14.

Transplantation of a human iPSC-derived hepatocyte sheet increases survival in mice with acute liver failure.

[Nagamoto Y](#)¹, [Takayama K](#)², [Ohashi K](#)³, [Okamoto R](#)¹, [Sakurai F](#)⁴, [Tachibana M](#)⁵, [Kawabata K](#)⁶, [Mizuguchi H](#)⁷.

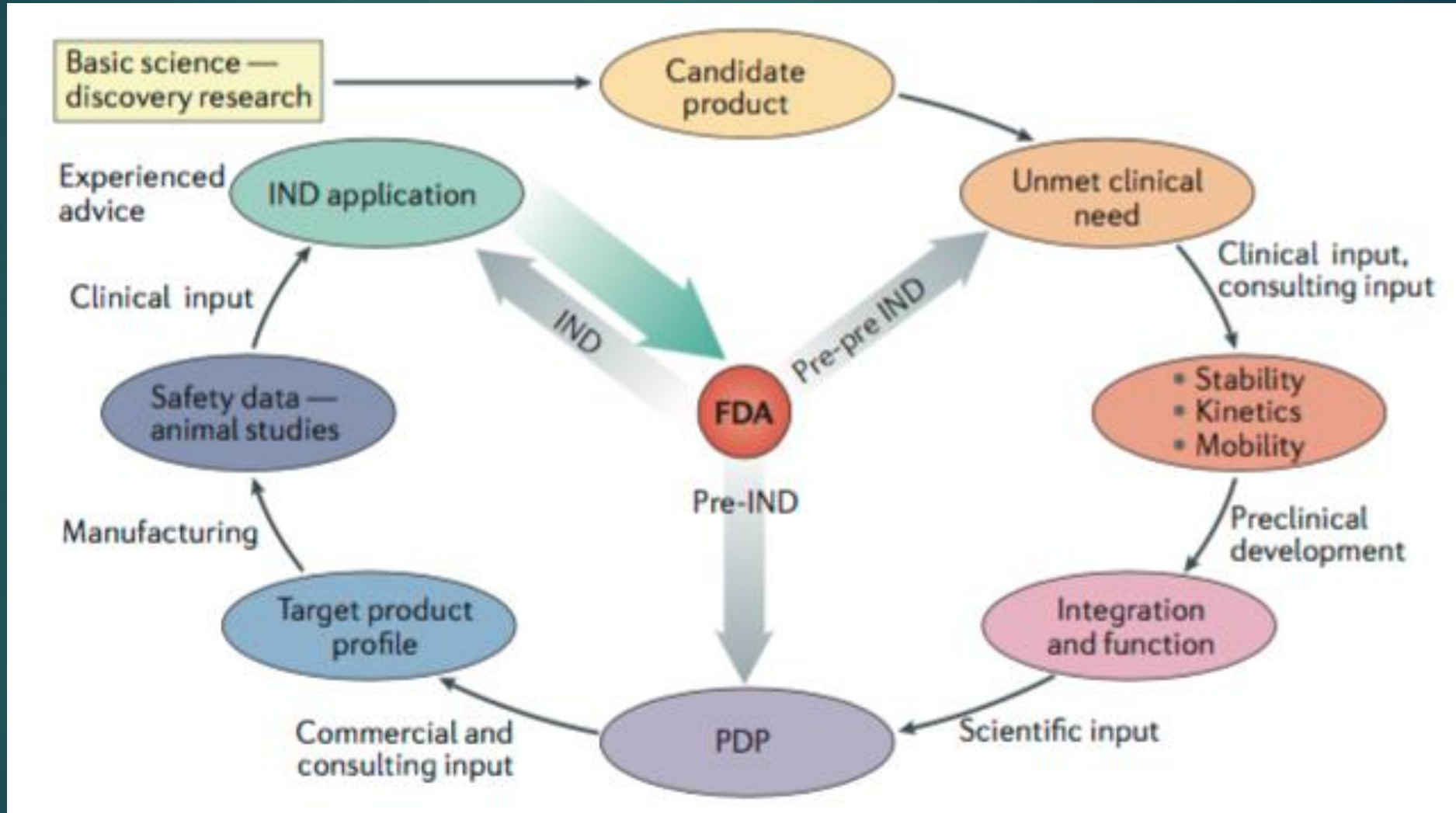
Citation: *Blood Cancer Journal* (2014) **4**, e211; doi:[10.1038/bcj.2014.30](https://doi.org/10.1038/bcj.2014.30)
Published online 9 May 2014

Induced pluripotent stem cells in hematology: current and future applications

OPEN

D Focosi^{1,6}, G Amabile^{2,3,6}, A Di Ruscio^{2,3}, P Quaranta⁴, D G Tenen^{2,5} and M Pistello⁴

Onde estamos?





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