

Stem Cells and Gene Therapy

Lecture by Dr Mike Doran

Assessment:

Please answer the following five questions using the information provided in the lecture and the suggested literature or NIH references. Any of the provided information sources can be supported with additional references, but please use the suggested sources as a minimum. All five questions are worth 10 marks (total 50 marks). I expect paragraph style answers and a bibliography. The criteria marking sheet previously provided by Dr Huston will be applied.

1. What is the difference between embryonic stem cells and adult stem cells?
 - a. Please site NIH:
<http://stemcells.nih.gov/info/basics/pages/basics5.aspx>
2. What are the limitations of embryonic stem cells?
 - a. Please site the Dark Side of Pluripotency by Martin Pera
<http://www.nature.com/nature/journal/v471/n7336/full/471046a.html>
3. What therapies are adult stem cells currently used in?
 - a. You can use literature – you may find NIH more reliable/reputable.
<http://stemcells.nih.gov/info/pages/health.aspx>
4. Why (from a regenerative medicine perspective) are we interested in stem cells and paracrine signaling?
 - a. Please site Caplan and Correa – The MSC: an injury drugstore.
<http://www.ncbi.nlm.nih.gov/pubmed/21726829>
You are welcome to site other literature as well.
5. How might stem cells and gene therapy converge to enable tissue regeneration?
 - a. Please site Myers et al. Mesenchymal stem cells at the intersection of cell and gene therapy
<http://informahealthcare.com/doi/pdf/10.1517/14712598.2010.531257>