

Template with Answers



ASMR Medical Research Week® 2010 Victorian Secondary Schools Medical Research Quiz

1. Medical Researchers



<http://nobelprize.org>

Western Australian Medical Researchers Prof Barry Marshall and Dr Robin Warren won the 2005 Nobel Prize in Physiology or Medicine for their discovery that stomach ulcers were caused by:

- A) stress
- B) acidic foods
- C) bacteria
- D) fatty foods

2. Medical Researchers

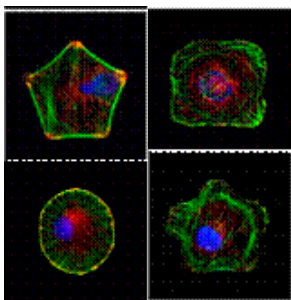


Alfred Nobel

Which Australian did not win the noble prize in the category “physiology or medicine”?

- A. Peter Doherty
- B. Sir Frank MacFarlen Burnet
- C. Sir John Carew Eccles
- D. Sir John Warcup Cornforth
- E. Elizabeth H. Blackburn

3. Stem Cells



Stem cells inside different shaped moulds

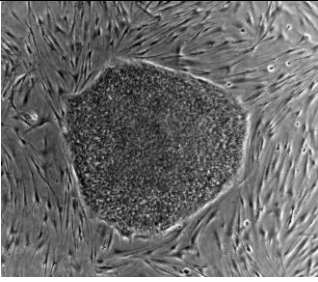

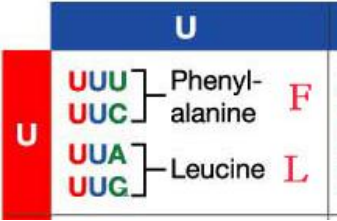

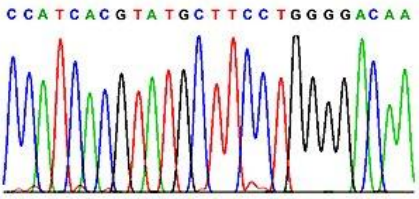
<http://www.ncbi.nlm.nih.gov/pubmed/>



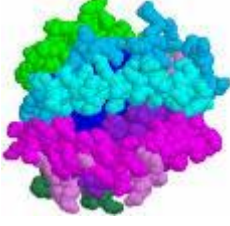
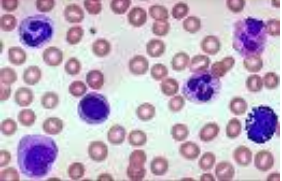
Geometry may be used to decide a stem cells fate. Culturing bone marrow in certain shaped moulds can influence how a cell differentiates. Which of the following is likely to produce more osteoblasts than adipocytes

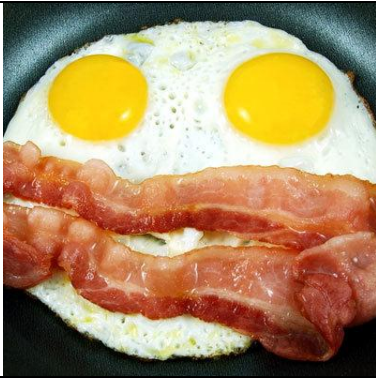
- A) square
- B) flower
- C) star
- D) circle

4. Stem cells

Induced Pluripotent stem cells may one day be used to repair damaged nerve, heart or pancreatic tissue curing diseases such as Alzheimers, heart attack or diabetes.

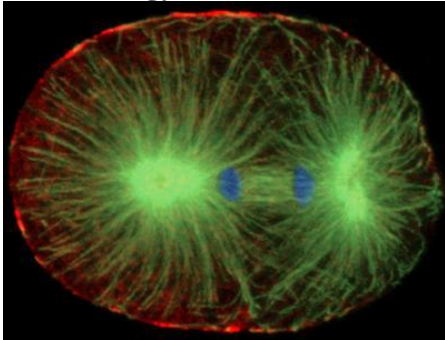
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|---|---|
|  <p>Embryonic stem cells in a culture dish</p> <p>http://www.ncbi.nlm.nih.gov/pubmed/</p> | <p>Induced pluripotent stem cells are made by introducing which 4 genes into patient skin cells</p> <p>A) Nanog, Oct4, Myc, Sox2 B) Oct4, Myc, Sox2, Fbx15 C) Myc, Sox2, Fbx15, Klf4 D) Sox2, Oct4, Myc, Klf4</p> |
| <p>5. Genetics</p>  <p>http://www.ncbi.nlm.nih.gov/</p> | <p>What gene does this peptide sequence come from? MVHLTDAEKAAVSGLW</p> <p>A) beta globin B) alpha globin C) fetal globin D) albumin</p> |
| <p>6. Genetics</p>  <p>http://campus.queens.edu/faculty/jannr/Genetics/images/codon.jpg</p> | <p>What gene DNA sequence encodes this peptide? MSVGLPGPHS</p> <p>A) ATGAGTGTGGGTCTTCCTGGTCCCACAGT B) ATGAGTGTGCGTCTTCCTGGTCCCCACAGT C) ATGAGTGTGGGTCTTTCTGGTCCCCACAGT D) ATGAGTGTGGGTCTTCCTGGTCCCCACAGT</p> |
| <p>7. The Genome</p>  <p>http://www.abc.net.au/science/articles/2006/01/31/1558077.htm</p> | <p>What was the first Australian marsupial to have its genome sequenced?</p> <p>A) <i>Monodelphis domestica</i> B) <i>Macropus eugenii</i> C) <i>Macropus giganteus</i> D) <i>Phascolarctos cinereus</i></p> |
| <p>8. The Genome</p>  <p>DNA sequencing</p> | <p>When was the first human chromosome (chromosome 22) first completely sequenced?</p> <p>A) 1999 B) 1991 C) 2008 D) 2005</p> |

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| <p>9. Health</p>  <p>http://www.heraldsun.com.au/entertainment/confidential/radical-treatment-for-parkinsons-has-transformed-john-strop-cornell/story-e6frf96x-1225854289750</p> | <p>Deep brain stimulation functional neurosurgery is a novel method used to treat Parkinson's disease patients. What is the most recent stimulation target brain area directed for deep brain stimulation to treat Parkinson's disease patients with significant symptoms of freezing of gait and postural instability?</p> <p>A) subthalamic nucleus B) pendunclopontine nucleus C) globus pallidus interns D) ventral intermediate nucleus of the thalamus</p> |
| <p>10. Health</p>  | <p>Placebos are often used in clinical trials of new drugs to rule out:</p> <p>A) False positive results B) Gender differences C) False negative results D) Harmful side effects</p> |
| <p>11. The Immune System</p>  <p>http://emedicine.medscape.com/article/432209-overview</p> | <p>What cell surface molecule is a major agent in tissue rejection?</p> <p>A) MHC B) CD28 C) CD80 D) CD154</p> |
| <p>12. The Immune System</p>  <p>http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/B/B_and_Tcells.html</p> | <p>Where in the adult human body are leukocytes produced?</p> <p>A) Bone marrow & Thymus B) Thymus C) Blood D) Bone marrow</p> |
| <p>13. Biology</p> | <p>Which one of the following fats is unsaturated?</p> <p>A. saturated fatty acids B. octanoic acid C. stearic acid</p> |



D. oleic acid

14. Biology



Which of the following cell organelles does NOT participate during cell division?

- A. chromosomes
- B. ribosomes
- C. mitotic spindle
- D. cytoplasm

15. Blood

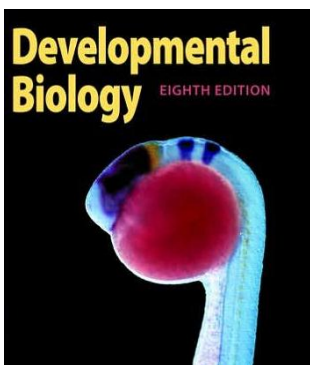


Approximately how many litres of blood does the adult human body contain?

- A) 2 litres
- B) 5 litres
- C) 10 litres
- D) 15 litres

http://www.ktl.fi/publications/ehrm/product2/part_iii4.htm

16. Blood



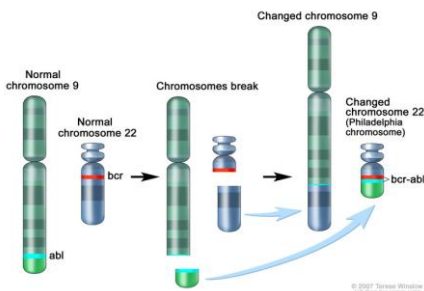
From which embryonic cell lineage does adult blood develop?

- A) mesoderm
- B) ectoderm
- C) endoderm
- D) echinoderm

<http://8e.devbio.com/>

17. Cancer

If you were found to have the “Philadelphia” chromosome, what therapeutic drug would likely be prescribed?



<http://visualsonline.cancer.gov/details.cfm?imageid=7153>

- A) Herceptin
- B) Gardasil
- C) Imatinib
- D) Taxol

18. Cancer



<http://www.smh.com.au/world/science/outsoken-australian-scientist-dropped-by-bush-wins-nobel-20091005-gjht.html>

Australian Scientist Professor Elizabeth Blackburn was awarded the Nobel prize in 2009 for her contribution to our understanding of cell division and cancer. What gene did she discover?

- A) BRCA1
- B) Rb
- C) Telomerase
- D) APC

19. Medical Research in Australia



www.nhmrc.gov.au/

The NHMRC Ethics Award recognises outstanding contribution to the achievement of high ethical standards in health and medical research. The 2010 winner was:

- A) Professor David Weisbrot, AM
- B) Sir Gustav Nossal AC CBE FAA FRS
- C) Professor Peter Doherty AC FAA
- D) Professor Elizabeth Blackburn AC FRS

20. Medical Research in Australia



The Australian Society for Medical Research (ASMR) Medical Research Week® 2010 in Victoria will include special events for high school students such as: Tertiary Career Nights, Regional Schools Tours and 3RRR live to air broadcast.

The 2010 Medical Research Week dates are:

- A) Feb 29 – March 5
- B) March 29 – April 5
- C) April 29 – May 5
- D) June 4 – June 11

**Please direct your any queries
to the ASMR quizmaster,
Dr Adam Hart
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Many Thanks to Rishika Pace, Dr Demelza Ireland, Dr Sara Greay, Katherine Lange, Dean Lozanov, Yullia Beteramia, Denuja Karunakan, Nadeeka Dissayaka,

Claire Ciantar and Hamish Hill at ASN for assistance with production and editing of the 2010 online quiz.

Some generic health, science and medical research websites to get you started

Molecular Biology of the Cell

<http://www.betterhealth.vic.gov.au/>

<http://www.abs.gov.au/>

<http://www.health.gov.au/>

<http://www.abc.net.au/science/>

<http://www.science.org.au/nova/index.htm>

http://en.wikipedia.org/wiki/Main_Page

<http://www.howstuffworks.com/>

ASMR 2010 QUIZ Answers and Web links:

Website/s with background information required to answer the question

1. D

https://grants.innovation.gov.au/SciencePrize/Pages/Doc.aspx?name=previous_winners/PM2008Frazer.htm

2. C

<http://www.australianoftheyear.org.au/pages/page22.asp>

http://nobelprize.org/nobel_prizes/medicine/laureates/

3. C

<http://www.newscientist.com/article/mg20527503.500-star-and-flowershaped-moulds-tell-stem-cells-what-to-be.html>

4. B

<http://stemcells.nih.gov/info/scireport/chapter1.asp>

<http://www.csa.com/discoveryguides/stemcell/overview.php>

5. D

<http://blast.ncbi.nlm.nih.gov/Blast.cgi?PAGE=Proteins>

6. C

<http://www.treachercollins.co.uk/gene/genes.htm>

7. C

<http://en.wikipedia.org/wiki/Pregnancy>

8. D

<http://en.wikipedia.org/wiki/Pregnancy>

9. A

www.who.int/topics/malaria/en/

10. B

http://www.nhmrc.gov.au/your_health/healthy/alcohol/alcoholqa.htm#q1

11. C

<http://www.thefreelibrary.com/HIV-related+viruses+still+cross+species.-a072058398>

<http://www.ncbi.nlm.nih.gov/pubmed/9989410>

12. A

http://www.health.qld.gov.au/dengue/dengue_fever/mosquito.asp

13. B

http://en.wikipedia.org/wiki/Inductive_reasoning

14. C

<http://www.utm.edu/research/iep/o/ockham.htm>

15. B

http://en.wikipedia.org/wiki/Blood_vessel

16. D

http://en.wikipedia.org/wiki/Systemic_circulation

17. A

www.prostate.org.au

18. D

<http://www.gardasil.com/>

19. C

http://www.nhmrc.gov.au/health_ethics/index.htm

20. D

<http://www.beamedicalresearcher.org>