

Disease, Disability, & immortality: Hope & Hype Questions

Mapping Stem Cell Research: Terra Incognita produced and directed by Maria Finitzo. [Link](#)

by Katayoun Chamany Updated Aug 2017

Below are Thought Questions to guide your critique of the movie Terra Incognita: Mapping Stem Cell Research. Think about using various examples, passages, imagery from the film to support or refute some of the ideas and statements below or answering some of the questions. Your essay should be 1500 words in length and draw on specific passages and images and connect to the readings from the course.

1. Considering the media hype around stem cell research - why and how does film bring attention to this field of research in ways that print (books, news, magazines) internet, and radio may not.
2. What roles do documentary and fiction film play in getting audiences interested in science- are they similar or different?
3. What is health and why is it valued? Reflect on the *Lancet* Editorial "[What is Health: The Ability to Adapt](#)"?
4. What is the connection in people's minds between some level of health and some level of social functioning – in school, family, work, politics, civic life? There are an array of characters in the film and they do not share the same views. How does life experience influence their views?
5. How does the film help you understand the lives of people living with disability? How, for example, does it affect the goal of obtaining higher education?
6. How does disability intersect with other identities such as age, gender and socioeconomic class?
7. How should people who are not "healthy" or "normal" by some definitions think about themselves, and how should society think about their situation? Do the answers vary depending upon the characteristics of the health condition in question: physical, mental, emotional, sensory?; congenital or acquired?; early-onset or late-onset?; static or progressive?; visible or invisible?; ultimately fatal or not?
8. Is what we call a disability inevitably a disadvantage, a "handicap", or a problem, or does its impact upon a person's life depend upon non-medical facets of the society in which they are living? Again, the characters in this film do not necessarily agree; where do you see conflict or difference?
9. Some of your readings and some of the characters in this movie consider the stage in life at which someone acquires an impairment (early in childhood or adolescence versus later) as contributing to the difference in how people make sense of disability. How does the film portray this? What does the film leave out? What questions does it make you want to ask about other disabilities?
10. If the United States is interested in promoting health, what actions could it or should it take to change conditions that cause harm to people's health? Why does society appear to be more

interested in some therapies, such as stem cell research or genetic alteration, than in making safer products?

11. There is some genetic research that purports that there might be risk taking genes? What do you think people will do with that knowledge? How might it be applied? What would the characters in this film support in terms of risk taking genes?
12. Are there some conditions that could be prevented or supported by environmental, product, lifestyle changes?
13. Does it make any sense to think of characteristics like spinal cord injury, diabetes, schizophrenia, Parkinson's disease, or cystic fibrosis with the same attitude we take toward variations in ethnicity, religion, height, gender, sexual orientation, or age? How do we as a society link disability with other forms of diversity/social justice, and is this appropriate?
14. The two graduate students Vicki and Vibhu in Jack Kessler's lab at Northwestern depicted in the *Terra Incognita* documentary film were successful in publishing their work in the *Journal of Neuroscience* in 2008. The work was covered in *Nature Magazine*, a journal targeting scientists, and in a news story published in *Northwestern University News* designed to communicate the work to a wider audience.

Review the abstract from the research article and the two news stories, and answer the following questions. You should be able to answer all the questions using ONLY these readings. Use extra paper to track your progress and work and include all of this in your submitted work (I want to see how you approach the questions as much as how you answered them.)

Research Article: Tysseling-Mattiace, V. et al. April 2, 2008. Self-assembling nanofibers inhibit glial scar formation and promote axon elongation after spinal cord injury. *The Journal of Neuroscience*. 28(14):3814-3823. [Link](#)

News: Paul. M. April 2, 2008. Promising New Stem Cell Nanotechnology for Spinal Cord Injury. Northwestern University. [Link](#)

News: 2008. Top Down Bottom Up: Bridging Two Cultures. *Nature Nanotechnology*. 3: 317. [Link](#)

Key Vocabulary Words: Some words that might be unfamiliar are listed below to help you navigate the abstract of the research article.

Lamina epitope (IKVAV): A small protein sequence involved in cell-cell interactions that has a specific three-dimensional structure that can be recognized by other proteins.

Nanofiber: a very small fiber

Ionic Strength: Ions are charged particles, like Ca^{++} or Na^{+} . Ionic strength refers to the concentration of ions in a solution. Your body regulates ion concentrations via ion channels in the membrane of cells that can be opened and closed depending on environmental signals. Your cells in your body are bathed in a solution of salt (ions) and water; hence why you taste salt in sweat.

a. The work published in the *Journal of Neuroscience* was built on prior work from the lab using cultured stem cells. **Draw and narrate** this prior work using the Scientific Method Heuristic (as found in the SCAC Scientific Method PPT).

b. The current work being published in the *Journal of Neuroscience* builds off that prior work. **In one or two sentences describe the ways** in which the current work **is similar to** the prior work and the ways in **which it differs**.

- c. **List the steps of the Scientific Method** as they apply to Vicki and Vibhu's approach to SCI and **use the Scientific Method Heuristic to map out the experimental design** that they used to support their hypothesis. How were they able to prove that their idea worked?
- d. If you were to describe the differentiation potential of these neural stem cells **what word** would you choose and what evidence supports this choice? Where on the SCAC Radial Infographic would you place these cells or do you need to conceive of a different visual narrative?
- e. Draw the molecular and cellular events that demonstrate how PA molecules are responsible for the results of this experiment in sequence (label the drawing such that time is represented by 1, 2, 3, labels).