Summary
A dialogue based lesson about the real issues in stem cell research. Can induced pluripotent stem (iPS) cells – ‘hot stuff’ for researchers as it’s one of the latest major breakthroughs in stem cell science – be used to treat disease like Parkinson’s?

Students are asked to read two news articles and vote if a specific clinical trial mentioned in one of the articles should go ahead or not. After a presentation and two short videos on stem cells and Parkinson’s, students are asked to vote again.

Quick facts

<table>
<thead>
<tr>
<th>Age group</th>
<th>16 - 19</th>
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<tbody>
<tr>
<td>Group size</td>
<td>Up to 35</td>
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<tr>
<td>Duration</td>
<td>60 min</td>
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<td>Technical requirements</td>
<td>Powerpoint, internet connection for showing short videos.</td>
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</table>
| Required materials | - Copies of the 2 news stories for all students  
                      - 3 colour coded cards for voting ‘yes, no, or not sure’ for each student.  
                      - Internet or copy of the Michael J Fox story: www.youtube.com/watch?v=ECkPVTZIfP8  
                      - Powerpoint presentation 'Introducing stem cells' on www.eurostemcell.org  
                      - Internet or copy of the Stem Cell Story film on www.eurostemcell.org/films |
| Teacher role       | - Introducing the activity  
                      - Explaining science of stem cells and iPS cells using the powerpoint presentation and video  
                      - Explaining patient perspective using Michael J Fox video  
                      - Mediating questions, teacher guided discussion and voting of students |

Preparation
- Print copies of the 2 news stories  
- Make 3 coloured voting cards for each student  
- Check if videos and powerpoint presentation are working  
- If possible, organise a stem cell scientist, clinician or patient representative to share their opinion if the trial should go ahead or not.
### Lesson plan and timings

#### Part one (25 min)

1. **Ask students to read**
   - A fictional news story about an application for a clinical trial to treat Parkinson’s disease using iPS derived dopamine producing cells
   - An opinion article written in The Times suggesting the medical potential of iPS cells is exaggerated

2. **Introduce format:**
   - a) you will see a video of a Parkinson’s patient,
   - b) you’ll be asked to vote,
   - c) after we’ve looked at stem cells in more detail,
   - d) you’ll be asked to vote again.

3. **Explain what Parkinson’s disease is and show the video of Michael J Fox.**

4. **Ask students to use their coloured cards to vote on three statements, based on the limited info they have. Keep a record of class results, but don’t discuss outcome yet.**
   - **Statements:**
     1. I think stem cells are dangerous for patients – yes, no, not sure
     2. I think embryonic stem cells have more potential to treat disease than iPS cells – yes, no, not sure
     3. I am in favour of a clinical trial using iPS cells to treat Parkinson’s disease – yes, no, not sure

#### Part two (25 min)

5. **Introduce stem cells using powerpoint presentation.**
   - 5 min intro film on stem cells (excerpt from a Stem Cell Story film 00:00 – 04:32)
   - recap: properties of stem cells: self renewal and differentiation
   - different types of stem cells: embryonic stem cells / tissue (adult) stem cells
   - discovery in 2006/2007: induced pluripotent stem cells technique
   - why scientists are so excited about iPS cells (personalised treatments)
   - if arranged: a patient representative to tell their own story and respond to presentation (allow for extra time)

6. **Questions & sum-up**
   - Summarize points made and encourage students to ask questions.

#### Part three (10 min)

7. **Students vote again.**
   - **Statements:**
     1. I think stem cells are dangerous for patients – yes, no, not sure
     2. I think embryonic stem cells have more potential to treat disease than iPS cells – yes, no, not sure
     3. I am in favour of a clinical trial using iPS cells to treat Parkinson’s disease – yes, no, not sure

8. **Teacher guided discussion:**
   - have students voted differently? If so, ask individual students what changed their minds.