



Stem Cell and Embryo Research in Germany

Stem cell and embryo research has been intensely discussed in Germany for years, both in public and scientific circles. These areas of research raise ethical, legal, and social questions that test the limits of what is technologically possible and morally permissible. From 3 to 7 August 2023, the German Stem Cell Network (GSCN), in collaboration with the Berlin-based startup Civey, conducted an online survey in which 2,500 people participated. The aim of the survey was to capture the opinion of the German population to better understand societal acceptance and concerns regarding these research areas. Since participants had to register with Civey, the samples cannot be considered completely random. Therefore, the results of this survey are primarily seen as a reflection of sentiment and not as absolutely representative. This reflects the challenge of how surveys with relatively small samples can generally be considered “representative.” To avoid suggesting false precision, this article does not include decimal numbers for the percentage values.

Background

Stem cells have the extraordinary potential to develop into any cell type of the human body, making them an invaluable tool for regenerative medicine and understanding human developmental processes. Particularly, embryonic stem cells, which are derived from human embryos, are at the center of scientific and ethical debates. In Germany, the handling of embryonic stem cells is strictly regulated by the Embryo Protection Act (ESchG) and the Stem Cell Act (StZG). These laws provide strict guidelines for the research with human embryos and the use of embryonic stem cells to comply with ethical principles.

Survey Objective

The survey conducted by the GSCN aims to capture a sentiment snapshot of various aspects of stem cell and embryo research among a specific group of the German population who have registered online with Civey. Registration allows for the inclusion of personal data such as age and gender, as well as social (e.g., regional environment) and political information (such as voting intentions) in the analysis. Additionally, a preliminary survey on the interest and engagement of respondents in the life sciences identified a specific target group of about 200 people (approximately 8% of the total respondents). The insights from this target group enable a more detailed examination of the impact of in-depth information on opinions about the topic.

Methodology

To create a comprehensive sentiment picture within the population, a wide-ranging online survey was conducted to gather quantitative data. However, it should be noted that deeper insights into individual beliefs and ethical considerations of respondents are usually achieved through focused interviews or discussion groups, which were not feasible in the context of this survey. The following questions were of interest in the survey:

Fraunhofer Institute for Translational Medicine and Pharmacology ITMP

Fraunhofer is the largest application-oriented research organization in Europe with over 30,000 employees and operates 76 institutes and research facilities in Germany. ScreeningPort is a department of the Fraunhofer Institute for Translational Medicine and Pharmacology ITMP located in Frankfurt, Hamburg, Göttingen, Munich and Berlin. Fraunhofer ITMP conducts health research in line with the Fraunhofer 4D concept (Drugs, Diagnostics, Devices, Data), which aims to optimize inter- and transdiscipli-

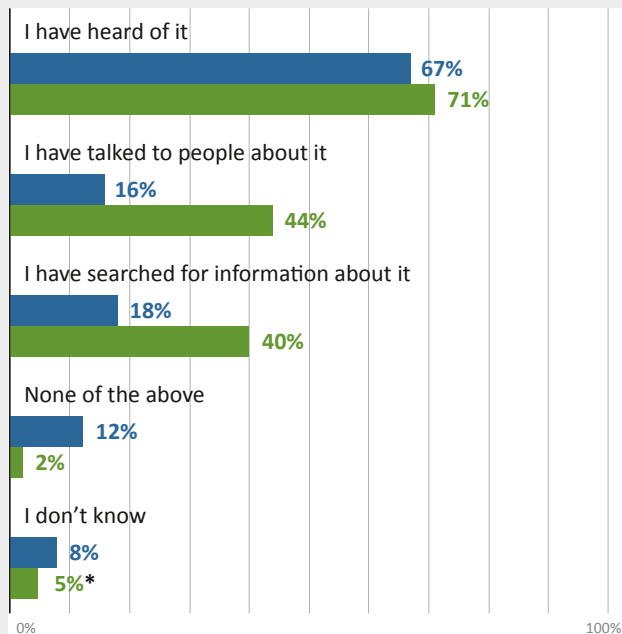
nary health research in order to improve patient treatment qualitatively and economically. One focus of ITMP ScreeningPort is on assay development for biochemical and cell-based formats, on development and application of efficacy and toxicity assays based on human pluripotent stem cells, on assay miniturization, high-throughput and high-content screening, and on chemi- and bioinformatics. The indication focus is on infectious and immune-related diseases.



Fraunhofer Institute ITMP ScreeningPort
Schnackenburgallee 114 · 22525 Hamburg
www.itmp.fraunhofer.de

Which of these statements regarding stem cell research apply to you? (multiple answers possible)*

- I have heard of it
Overall result: **67%** · Target group (TG): **71%**
- I have talked to people about it
16% · TG: **44%**
- I have searched for information about it
18% · TG: **40%**
- None of the above
12% · TG: **2%**
- I don't know
8% · TG: **5%***



■ Overall result ■ Target group

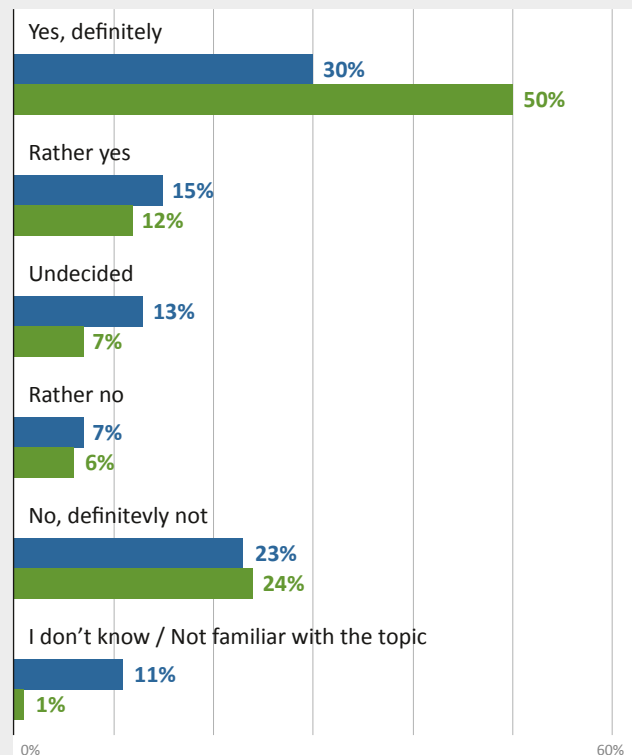
* The totals do not add up to 100% as multiple answers are possible.

Should research on artificially created embryo-like structures that cannot develop into a human be allowed in Germany, in your opinion?

- Yes, definitely
Overall result: **34%** · Target group (TG): **61%**
- Rather yes
14% · TG: **10%**
- Undecided
12% · TG: **4%**
- Rather no
5% · TG: **2%**
- No, definitely not
24% · TG: **20%**
- I don't know / Not familiar with the topic
12% · TG: **3%**

Should research on embryos that are no longer needed for in vitro fertilization be allowed in Germany, in your opinion?

- Yes, definitely
Overall result: **30%** · Target group (TG): **50%**
- Rather yes
15% · TG: **12%**
- Undecided
13% · TG: **7%**
- Rather no
7% · TG: **6%**
- No, definitely not
23% · TG: **24%**
- I don't know / Not familiar with the topic
11% · TG: **1%**



Human embryonic stem cell production is prohibited in Germany, but importation from abroad for certain research purposes is allowed. Which legal regulation do you support?

- Prohibit both production and import
Overall result: **26%** · Target group (TG): **29%**
- Prohibit production but allow import
4% · TG: **4%**
- Allow both production and import
46% · TG: **65%**
- I don't know / Not familiar with the topic
24% · TG: **2%**

How important do you think the research on human embryonic stem cells is for the development of future therapies for severe diseases?

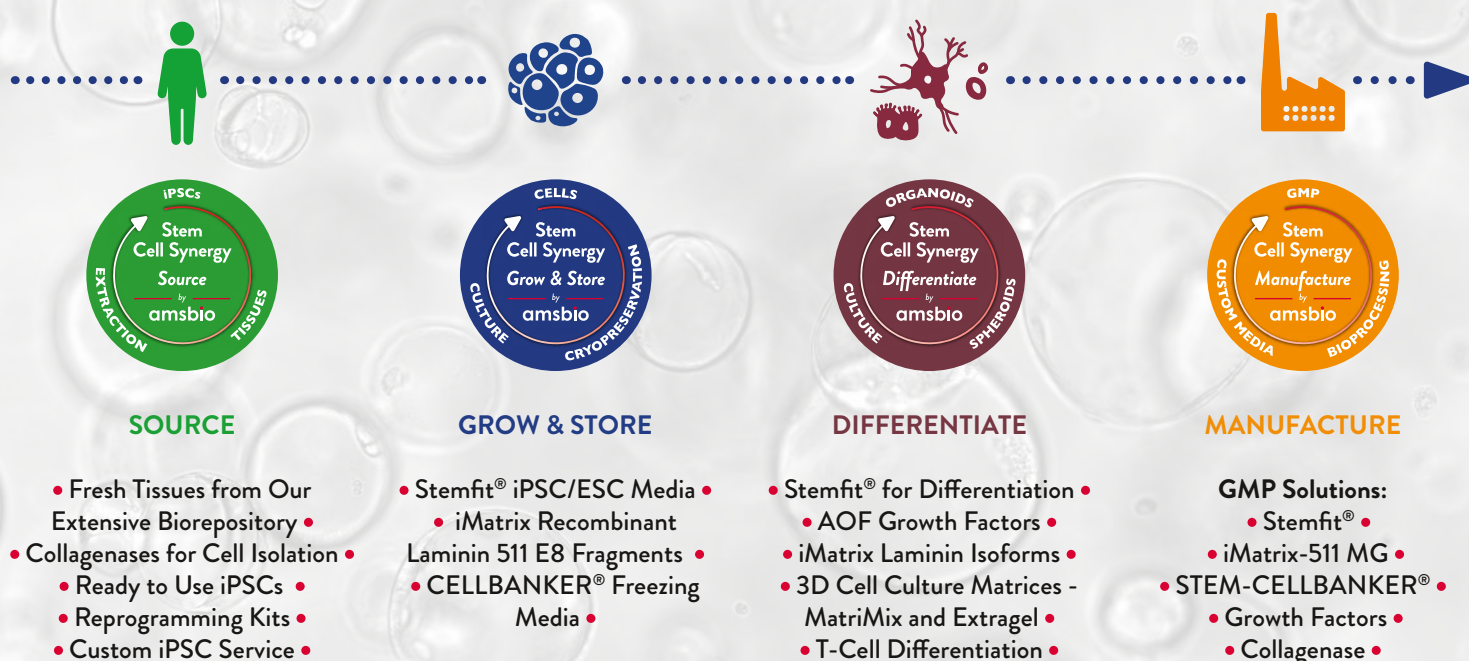
- Very high
Overall result: **39%** · Target group (TG): **47%**
- Rather high
26% · TG: **22%**
- Rather low
9% · TG: **12%**
- No significance
7% · TG: **12%**
- I don't know / Not familiar with the topic
20% · TG: **7%**

Should the use of human embryonic stem cells be allowed in Germany for research and application of therapies, in your opinion?

- Yes, definitely
Overall result: **40%** · Target group (TG): **54%**
- Rather yes
14% · TG: **14%**
- Undecided
13% · TG: **10%**
- Rather no
6% · TG: **3%**
- No, definitely not
16% · TG: **17%**
- I don't know / Not familiar with the topic
13% · TG: **3%**

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On a scale from 0 to 10 (0 = not relevant at all), what relevance does research with human embryonic stem cells have for you personally?

- Low relevance:
 - 0 (Overall result: **31%** · Target group (TG): **31%**)
 - 1 (**10%**; **10%**)
 - 2 (**7%**; **8%**)
 - 3 (**6%**; **5%**)
 - 4 (**4%**; **0%**)
 - Overall unimportant (58%; **54%**)
- 5 (**15%**; **9%**)
- High relevance:
 - 6 (**5%**; **9%**)
 - 7 (**5%**; **7%**)
 - 8 (**8%**; **15%**)
 - 9 (**3%**; **2%**)
 - 10 (**7%**; **5%**)
 - Overall important (**27%**; **37%**)

To what extent do you agree with the statement: “The Embryo Protection Law should be changed to reflect current developments in reproductive medicine (e.g., egg donation or surrogacy)”?

- Strongly agree
 - Overall result: **28%** · Target group (TG): **38%**
- Somewhat agree
 - 16%** · TG: **16%**
- Undecided
 - 16%** · TG: **8%**
- Somewhat disagree
 - 6%** · TG: **10%**
- Strongly disagree
 - 19%** · TG: **25%**
- I don't know / Not familiar with the topic
 - 16%** · TG: **3%**

To what extent do you agree with the following: “The Stem Cell Act (which, among other things, regulates the import of embryonic stem cells) should be changed to give science internationally equivalent opportunities”?

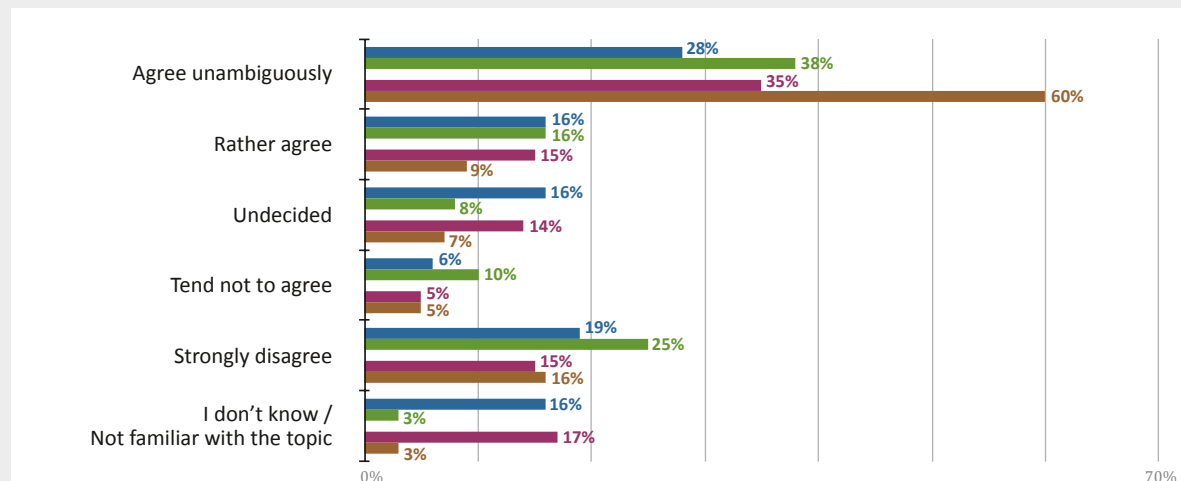
- Strongly agree
 - Overall result: **35%** · Target group (TG): **60%**
- Somewhat agree
 - 15%** · TG: **9%**
- Undecided
 - 14%** · TG: **7%**
- Somewhat disagree
 - 5%** · TG: **5%**
- Strongly disagree
 - 15%** · TG: **16%**
- I don't know / Not familiar with the topic
 - 17%** · TG: **3%**

Results

The survey results offer insights into the sentiment in Germany regarding stem cell and embryo research, though a detailed discussion of the entire results is not possible at this point. In summary, the majority of respondents support research on embryos and embryonic stem cells, although there is always a 20-30% opposition. This opposition does not change significantly even among the specially interested target group in the life sciences, although approval rates are higher due to less indecision. It appears that while more information increases approval, it does not necessarily reduce skepticism. However, a very large group of people overall expects embryonic stem cell research to be highly significant for the development of therapies for serious diseases (65% in the entire group and 69% in the specific target group).

■ Total result ESchG ■ Specific target group ESchG
■ Total result StZG ■ Specific target group StZG

To what extent do you agree with the statement: “The Embryo Protection Act (ESchG) resp. the Stem Cell Act (StZG) should be amended to reflect current developments”?



Regarding demographic differences, the results show that men are more positive towards research with human embryos than women (52% to 39%) and are more likely to favor loosening the legal regulations of the Stem Cell Act (53% to 45%). People from East Germany are more open to research and legal changes than those from the West (49% to 44% and 52% to 49%, respectively). Interestingly, potential voters for the FDP and The Greens are more positive about the research (around 53%) compared to voters for the SPD, Die Linke (about 48%), CDU/CSU (about 45%), and AfD (36%), with the latter predominantly opposing the research at 42%.

The current legal regulations that prohibit the production of embryonic stem cells but allow imports are considered adequate by only about 3-4% of respondents. A clear majority (46% and 64% in the specific target group) supports both the production and import of these cells. About 26% and 29% oppose both.

A majority also advocates for a change in legislation, both for the Embryo Protection Act (44:25% overall or 56:35% in the specific target group) and the Stem Cell Act (50:20% overall or 69:21% in the cross-sectional group). Detailed demographic breakdowns of the results by age, gender, educational level, and other factors can be viewed on the GSCN website under the URL: <https://www.gscn.org/public-resources/gscn-umfrage-survey-2023> in the Excel document GSCN_EmbryonaleStammzellforschung_DE_EN_0823.xlsx and the graphical representation GSCN_EmbryonaleStammzellforschung_0823.pdf.

Conclusion

The survey on stem cell and embryo research in Germany has provided significant insights into public opinion on this controversial topic for the GSCN. The results contribute to enhancing the exchange between science, politics, and society, and provide a solid foundation for informed decisions and future regulations in this area of research.

Text: Daniel Besser



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