# Article information:

A sample cell for the study of enzyme-induced carbonate precipitation at the grain-scale and its implications for biocementation | Scientific Reports
<https://www.nature.com/articles/s41598-021-92235-7>

# Article summary:

1. The cement industry is responsible for up to 5% of anthropogenic CO2 emissions, so alternative materials need to be developed to reduce these emissions.

2. Biocementation is a process that uses biomineralization of CaCO3 to cement a granular medium, and has the potential to reduce CO2 emissions during production.

3. The enzyme urease catalyzes the hydrolysis reaction of urea, which increases the pH and induces precipitation of CaCO3 if calcium is available in the crystallization solution.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article provides an overview of biocementation as an alternative material for construction with lower CO2 emissions than traditional concrete production processes. It explains how the enzyme urease can be used to catalyze the hydrolysis reaction of urea, increasing the pH and inducing precipitation of CaCO3 if calcium is available in the crystallization solution. The article does not provide any evidence or data to support its claims about biocementation being able to reduce CO2 emissions during production, nor does it explore any potential risks associated with this process. Additionally, there is no discussion on other possible alternatives for reducing CO2 emissions from concrete production or any counterarguments against using biocementation as an alternative material. Furthermore, there is no mention of any potential biases or sources of bias in the article, making it difficult to assess its trustworthiness and reliability.

# Topics for further research:

* CO2 emissions from concrete production
* Alternatives to concrete production
* Risks associated with biocementation
* Counterarguments against biocementation
* Biases in biocementation research
* Environmental impacts of biocementation

# Report location:

<https://www.fullpicture.app/item/a1c035b05f7a61f1aef0820c17d65380>