# Article information:

Solar‐Powered Organic Semiconductor–Bacteria Biohybrids for CO2 Reduction into Acetic Acid - Gai - 2020 - Angewandte Chemie International Edition - Wiley Online Library
<https://onlinelibrary.wiley.com/doi/10.1002/anie.202001047>

# Article summary:

1. An organic semiconductor-bacteria biohybrid photosynthetic system is presented that efficiently reduces CO2 to produce acetic acid through the non-photosynthetic bacteria Moorella thermoacetica.

2. The system uses a p-n heterojunction (PFP/PDI) layer of perylene diimide derivative (PDI) and poly(fluorene-co-phenylene) (PFP) as photosensitizers, which have excellent light-harvesting ability and biocompatibility.

3. The efficiency of this organic biohybrid is about 1.6 %, which is comparable to those of reported inorganic biohybrid systems.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article provides a detailed description of an organic semiconductor–bacteria biohybrid photosynthetic system for efficient CO2 reduction into acetic acid with the non-photosynthetic bacteria Moorella thermoacetica. The authors provide evidence for their claims, such as the use of a p-n heterojunction (PFP/PDI) layer of perylene diimide derivative (PDI) and poly(fluorene-co-phenylene) (PFP), which have excellent light harvesting ability and biocompatibility, as well as the efficiency of this organic biohybrid being about 1.6 %, which is comparable to those of reported inorganic biohybrid systems.

The article appears to be unbiased and presents both sides equally, providing evidence for its claims and exploring counterarguments where necessary. There does not appear to be any promotional content or partiality in the article, nor are there any missing points of consideration or missing evidence for the claims made. However, it should be noted that possible risks associated with this technology are not discussed in detail in the article, so further research may be needed to assess these risks before implementation.

# Topics for further research:

* Organic semiconductor safety
* Bacteria biohybrid photosynthetic system risks
* PFP/PDI layer biocompatibility
* Moorella thermoacetica efficiency
* Inorganic biohybrid systems comparison
* CO2 reduction into acetic acid implications

# Report location:

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