

## ***Interactive comment on “Inducing the Attachment of Cable Bacteria on Oxidizing Electrodes” by Cheng Li et al.***

**Anonymous Referee #2**

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The study of Li et al. is a follow up study on the Reimers et al. (20xx) where cable bacteria attachments to the anodes in microbial fuel cells were reported. Li and co-workers aim to reproduce the observations by establishing a microbial fuel cell in the lab and then investigate if cable bacteria attach to the anode. After 135 days of incubation cable bacteria attachments were observed through SEM imaging and CARD FISH. In addition to the primary work Li and Co-workers report the presence of cable bacteria at their study site Yaquina Bay by means of pH, O<sub>2</sub> and H<sub>2</sub>S profiling, SEM, FISH and 16sRNA analysis. In general I think that the overall aim of this study is only loosely approached. The story goes in many directions and is not well focused: There are two lines one is the MCF line another is the report on cable bacteria in Yaquina Bay. If the primary aim was to investigate if cable bacteria can grow on anodes, why not

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tone the latter story line a bit more down to avoid confusions about the experimental goals? It is drawback that the authors do not present quantitative estimates of cable bacteria density on the electrodes and that they only present SEM images. I think that it would be better and more convincing with FISH or molecular tools (qpcr) that allows for both identification and quantification of cable bacteria on the anodes and on the control electrodes. This could allowed for a more robust comparison of the two types of systems and thus stronger conclusions. The techniques were used in the sediment studies, why where they not applied on in the experiment? Some of the citations are incorrect e.g. Risgaard-Petersen et al. 2015 is cited for observations that cable bacteria can deplete iron sulfide, but this paper report the discovery of cable bacteria in freshwater sediment. Should be Risgaard-Petersen 2012. Bjerg et al. 2016 and Pfeffer et al. 2012 are cited to document that *D. propionicus* can transfer electrons to electrode and/or to insoluble Fe(III)-oxides. This was not shown in these papers, which are on cable bacteria motility and on the discovery of the cable bacteria. Some statements are highly speculative and not supported by the presented data (l 293) “In summary, when growing on an electrode poised at an oxidative potential, cable bacteria may no longer require long filaments or be able to maintain them due to the nature of the potential gradient” There are no data in the study that can document such statement.

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