

iGEM2017 – Microbiology – BMB – SDU

Project type: iGEM2017	Creation date: 17.10.30
Project title: Extracellular Electron Transfer	Written by: JB
Sub project: Conductivity test	Performed by: FN & JB

1. SOPs in use

iGEM2017_SOP08_v03_JB_M9_minimal_medium

iGEM2017_SOP25_v01_NBAFYE_Geobacter

2. Purpose

To test the electrical conductivity of *E. coli* ER25663127 with BBa_K1172502/OprF compared to the *Geobacter sulfurreducens* PCA.

3. Overview

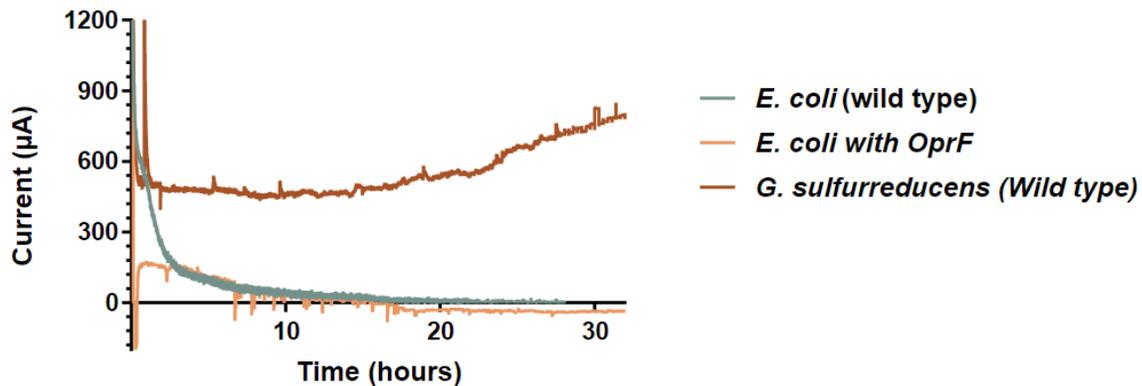
Day	SOPs	Persons	Experiments
17.10.26	SOP08 SOP25	FN	M9 media, NB media, ONC of <i>E. coli</i> and <i>G. sulfurreducens</i> .
17.10.27		FN & JB	OD ₆₀₀ measurements, start of conductivity measurements.
17.10.30		FN & JB	Results

4. Experiment history

Date (YY.MM.DD)	SOPs	Alterations to SOPs and remarks to experiments	
17.10.26	SOP08 SOP25	FN	<p>M9 media and NB media was made according to the SOPS. A solution was made consisting of 13ml acetate solution, 50ml fumerate solution and till 1L NB media. After this 10ml cysteine was added to the media and it was degassed to it became anarobic.</p> <p>2x1L flasks was made with 50mL 200g/L glucose and till 1L with M9 media.</p> <p><i>E. coli</i> ER25663127 and <i>E. coli</i> ER25663127 with BBa_1172502 set to ONC at 37°C in the flasks of M9 and glucose. <i>G. sulfurreducens</i> PCA was added anaerobically to the NB media mix with acetate and furmarate and placed at 37°C over night.</p>
17.10.27	SOP25	FN & JB	<p>OD₆₀₀ was measured and both <i>E. coli</i> cultures had OD₆₀₀ between 0,4 and 0,5. while <i>G. sulfurreducens</i> had a OD₆₀₀ at 0,05.</p> <p>Each culture from the ONC was placed in 1L single chamber flasks with three-electrode system for studying the electrochemical of intact cells. Half of the media in the <i>G. sulfurreducens</i> flask was trashed and it was filled with new NB</p>

			media. All flasks was degassed so they became anaerobic. To the <i>E. coli</i> flasks methylene blue to achieve a concentration at 0,1mM was added and IPTG to achieve a concentration at 1mM both was added right before the measurements. For the <i>Geobacter</i> 13mL of 1M acetate solution from SOP25 was added when the experiment started.
17.10.30		FN & JB	The measurements was stopped, and we got the results.

5. Results and conclusions



The results showed that *G. sulfurreducens* was better at generating an electrical current than *E. coli* ER256631277 that has been introduced to the iGEM competition so f.