Accepted Manuscript

Title: *In vivo* "real-time" monitoring of glucose in the brain with an amperometric enzyme-based biosensor based on gold coated tungsten (W-Au) microelectrodes

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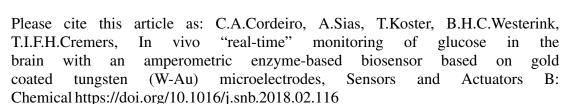
PII: S0925-4005(18)30394-0

DOI: https://doi.org/10.1016/j.snb.2018.02.116

Reference: SNB 24211

To appear in: Sensors and Actuators B

Received date: 1-10-2017 Revised date: 21-1-2018 Accepted date: 14-2-2018



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ACCEPTED MANUSCRIPT

In vivo "real-time" monitoring of glucose in the brain with an amperometric enzyme-based biosensor based on gold coated tungsten (W-Au) microelectrodes

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Highlights

- We developed and characterized W-Au based amperometric enzyme-based glucose biosensors
- W-Au microelectrodes continuously monitored *in vitro*, changes in H₂O₂.
- Functionalization of W-Au microelectrodes with permselective membranes, enhanced its selectivity.
- The performance of W-Au based biosensors was dependent on enzyme loading and applied potential.
- W-Au/Nafion-PPD/GOx $(0.6U/\mu L)$ polarized at 900 mV, was the most suitable design for implantation.
- W-Au based biosensors were able to accurately monitor, *in vivo* and in real-time, changes in brain glucose.

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