Electrochemical Multiplexed N-terminal Natriuretic Peptide and Cortisol detection in human artificial saliva: heart failure biomedical application

El Kahina Ghedir[1], Abdoullatif Baraket[2], Messaoud Benounis[1], Nadia Zine[2], Abdelhamid Errachid[2]

[1]Laboratory of Sensors, Instrumentations and Process (LCIP), Institute of Science and Technology, University of Khenchela;Route de El Hamma, 40000 Khenchela, Algeria.

[2]*Institut de Sciences Analytiques (ISA), Université de Lyon - UMR 5280, 5 rue de la Doua, 69100, Villeurbanne, France.*

Supplementary Material

Figure S1: Ghedir et al.

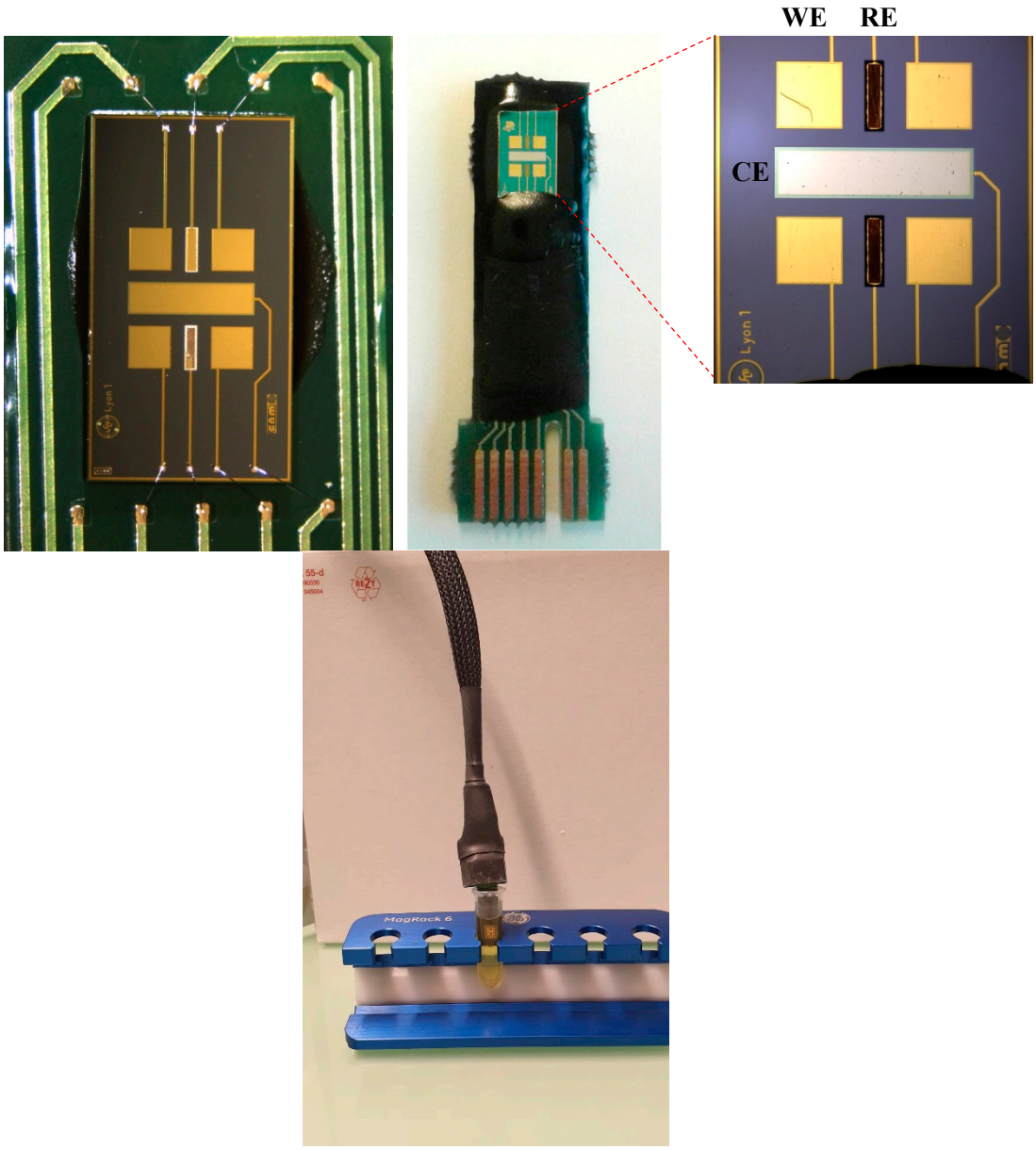

Figure S1: (A) Electrochemical biosensor platform sealed onto the PCB board using an epoxy resin (Epo-Tek H70E-2LC, from Epoxy Technology) and the microelectrode pads wire-bonded to the gold tracks of the BCP using aluminum wire (25 µm Ø) (Kulicke&Soffa 4523A). (B) The bonding area of the device, the bonding wires, and the gold tracks of the PCB were encapsulated using the same resin (Epo-Tek H70E-2LC) to protect them from the electrolyte solution. (C) The biosensor is based on silicon substrate sizes 7 × 4mm and contains four gold WE, two RE, and central platinum CE. (D) The biosensor is dropped in 1.5 mL of ferric electrolyte solution and connected to the potentiostat through shielded cable to avoid all electrical noises.

Figure S2: Ghedir et al.

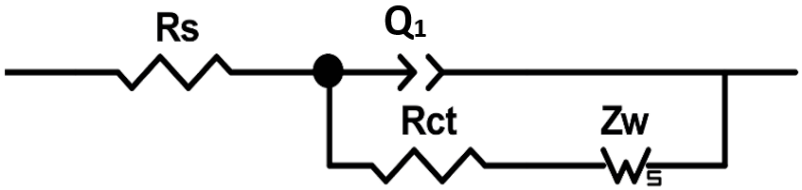

Figure S2: Randles equivalent circuit used for Nyquist plot semi-circles fitting, where Rs represents the electrolyte resistance, Rct is the charge-transfer resistance, W is Warburg impedance, and Q1 the constant phase element, an equivalent model of the double-layer capacitance.