SUPPORTING INFORMATION

High-Speed Scanning Electrochemical Microscopy Method for Substrate Kinetic Determination: Application to Live Cell Imaging in Human Cancer

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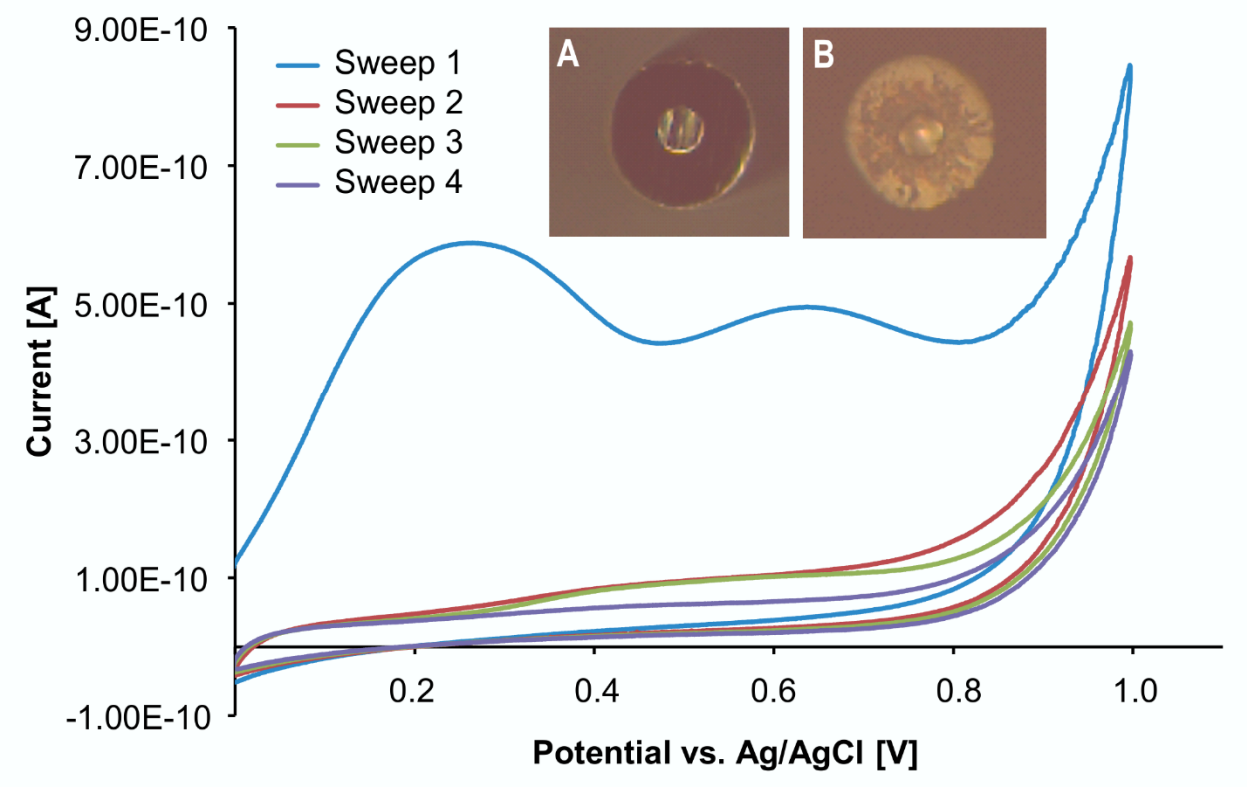

Figure S1: (A) Cyclic Voltammogram of 1 mM EGCg in PBS. An irreversible two electron transfer reaction is obvious during the oxidation of EGCg. Due to electrode blockage by the oxidation product of EGCg, the electrochemical signal diminishes after one initial sweep. Insets showing optical micrographs of the electrode before (A) and after (B) 21 sweeps in 1 mM EGCg solution.

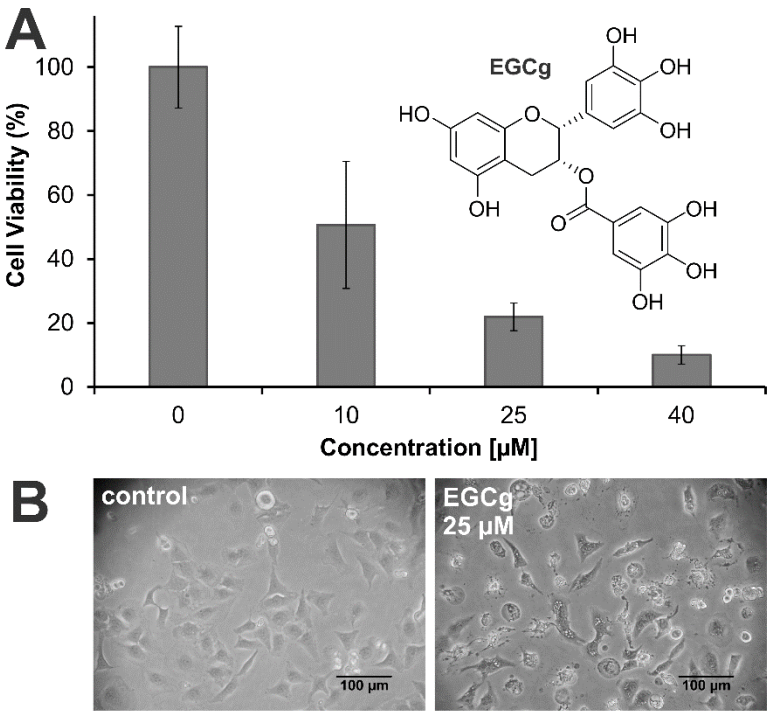

Figure S2: (A) Cell viability depending on EGCg concentration over a period of 4 hours. (B) Optical micrographs of HeLa cells incubated in DMEM- (left panel) or 25 µM EGCg in DMEM- for 24 hours.

Catechin effect on cell viability. In order to quantitatively evaluate a human cancer cell's metabolic rate under the influence of EGCg, a suitable catechin concentration needed to be identified. A concentration of 25 µM EGCg over an incubation period of one hour was identified from viability studies to impact cell metabolism without leading to immediate cell death. Figure 1A shows, this concentration eventually leads to necrosis in about 75 % of cells after 4 hours of incubation with only small effect variation among cells (small error bars). The long term effect of EGCg on cells' morphology and viability is shown in optical micrographs (Figure 1B), where typical signs of necrosis, e.g. swelling or matter disintegration can be seen in almost all cells after 24 hours of incubation.