Supporting Information for:

Electrochemiluminescent Sensors as a Screening Strategy for

Psychoactive Substances within Biological Matrices

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Supporting material includes CV responses for the oxidation of scopolamine hydrobromide at 1.25 and 2.5 mM at an unmodified carbon screen-printed electrode surface (Figure S1), the ECL responses of amino acids; tryptophan, glutamine, lysine and proline (Figure S2), ECL responses of six neat pooled serum samples to demonstrate variation in serum response (Figure S3), CV responses of SurineTM (blank urine matrix) at unmodified and $[Ru(bpy)_3]^{2+}$ modified electrodes (Figure S4) and the CV response of the $Ru^{2+/3+}$ redox couple within the $[Ru(bpy)_3]^{2+}$ modified electrode within artificial saliva (Figure S5).



Figure S1: CV responses of 0.1 M LiClO₄ (blue), 1.25 mM (purple) and 2.5 mM (pink) scopolamine hydrobromide at an unmodified carbon screen printed electrode, collected at a scan rate of 100 mV s⁻¹ across a potential range of $0.5 \le E \le 1.50$ V vs Ag with 0.1 M LiClO₄ as the supporting electrolyte.



Figure S2: ECL responses of 60 μ M tryptophan (blue), 600 μ M glutamine (yellow), 300 μ M lysine (pink) and 300 μ M proline (green) at a [Ru(bpy)₃]²⁺ film modified carbon screen printed working electrode collected at a scan rate of 100 mV s⁻¹ across a potential range of 0.2 \leq E \geq 1.4 V vs Ag at a PMT setting of 500 V.



Figure S3: ECL responses of six neat pooled serum samples collected with the $[Ru(bpy)_3]^{2+}$ film modified carbon screen printed working electrode at a scan rate of 100 mV s⁻¹ across a potential range of $0.6 \le E \ge 1.5$ V vs Ag and a PMT setting of 480 V.



Figure S4: CV responses of Surine[™] on unmodified carbon screen printed electrodes (blue) and Surine[™] on $[Ru(bpy)_3]^{2+}$ film modified carbon screen printed working electrode (purple) collected at a scan rate of 100 mV s⁻¹ across a potential range of $0.6 \le E \ge 1.5$ V vs Ag.



Figure S5: CV responses of 0.1 M LiClO₄ (green) and neat artificial saliva (blue) on $[Ru(bpy)_3]^{2+}$ film modified carbon screen printed working electrode collected at a scan rate of 100 mV s⁻¹ across a potential range of $0.2 \le E \ge 1.3$ V vs Ag.