Supplementary Material

Expanding Luminol Activity: UV-Enhanced Peroxidase-Like Activity for Dual-Mode Wide-pH Biosensing

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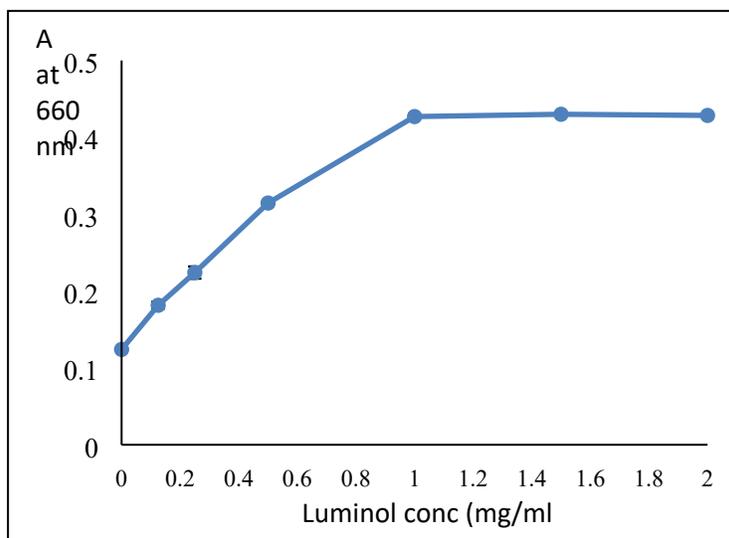*E-mail address: SS:ssriniv@mcmaster.ca, ARR: rajaba@mcmaster.ca
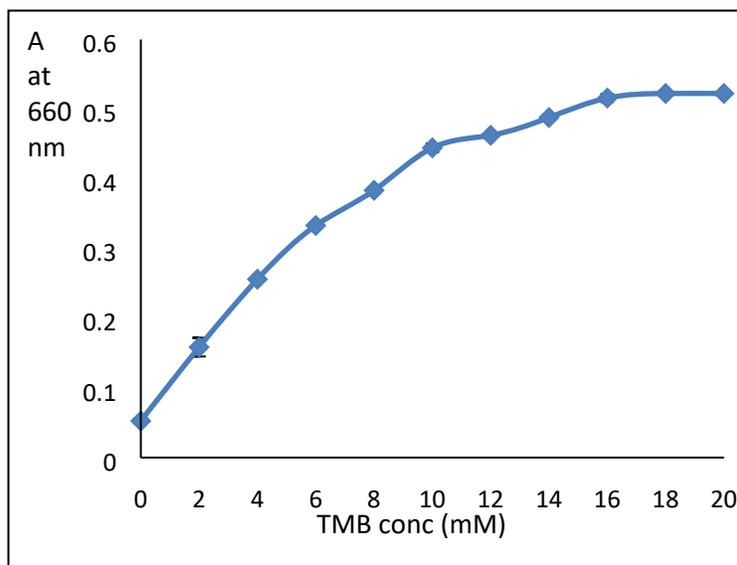
Fig S1: Optimization of luminol concentration for H_2O_2 detection

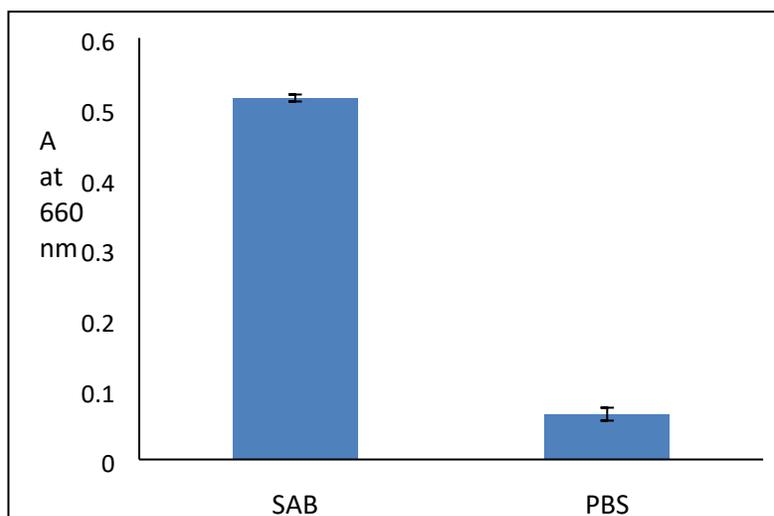**Fig S2**: Optimization of TMB concentration for H_2O_2 detection

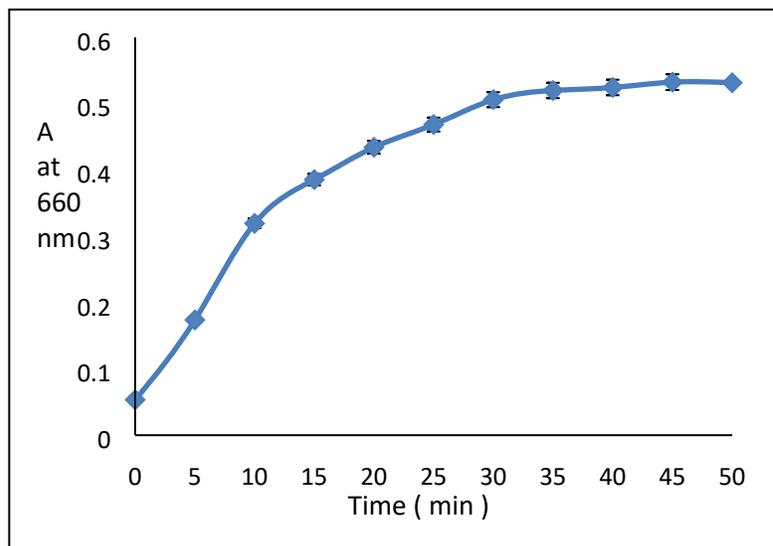**Fig S3**: Type of buffer for H_2O_2 detection

Fig S4: Time optimization for H_2O_2 detection

Table S1: Regression data and statistical parameters for detection of H_2O_2 using the developed colorimetric method.

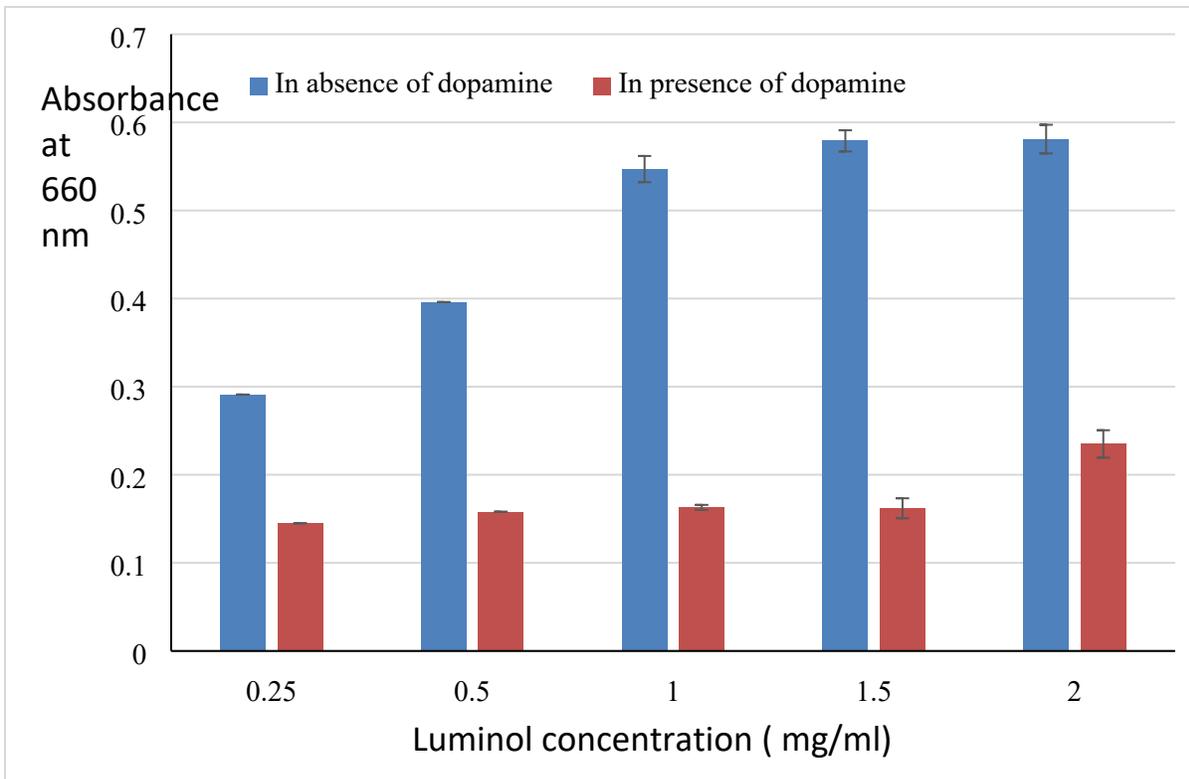| Parameter	value
Linearity range (mM)	(0.1-14 mM)
Coefficient of determination (r^2)	0.9969
LOD (mM)	0.0149
slope	0.2261
Intercept	0.1086
SE of slope (S_b)	0.0056
SE of intercept (S_a)	0.0032
SE of residuals ($S_{y/x}$)	0.0052

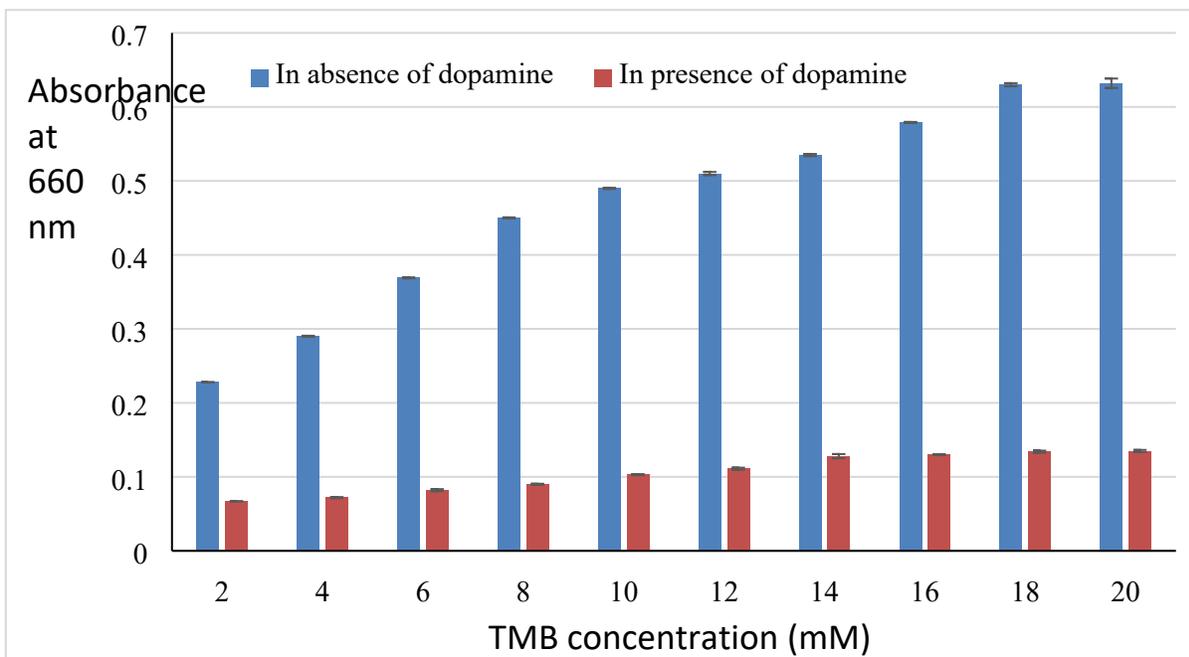**Fig S5**: Optimization of luminol concentration for dopamine detection

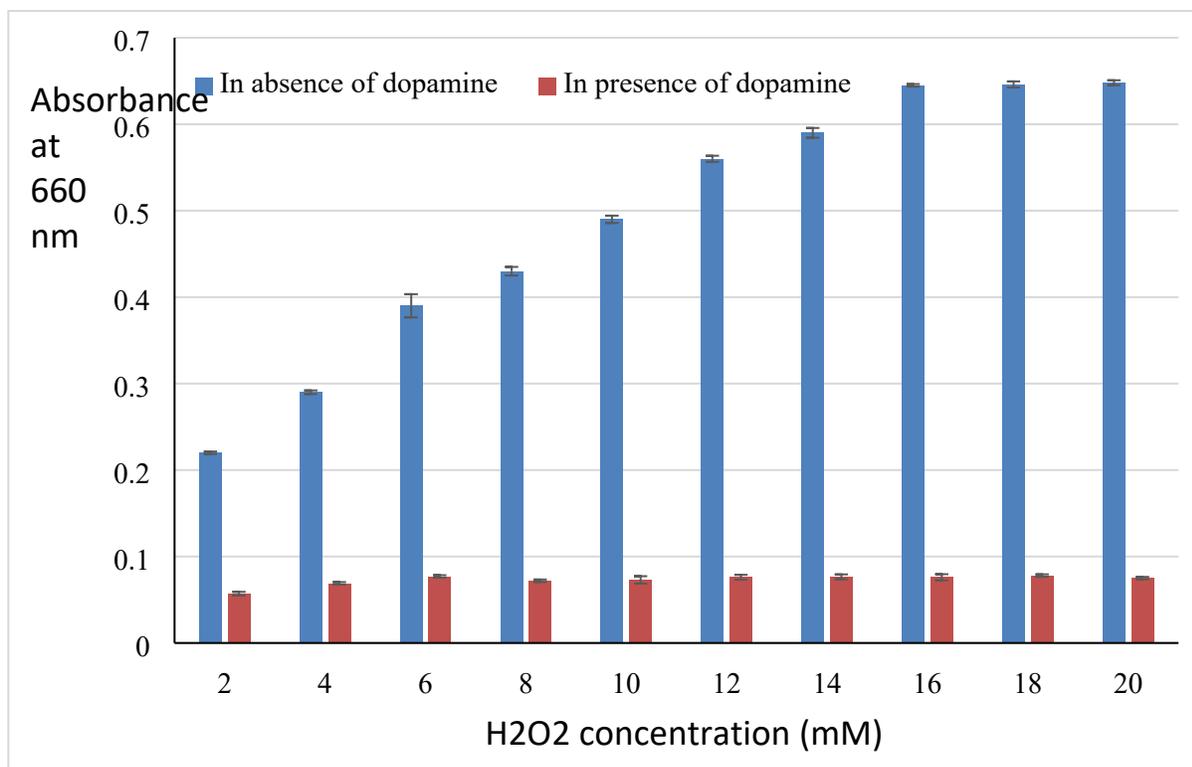**Fig S6**: Optimization of TMB concentration for dopamine detection

Fig S7: Optimization of H_2O_2 concentration for dopamine detection

Table S2: Regression data and statistical parameters for detection of dopamine using the developed colorimetric method.

Parameter	value
Linearity range (µM)	(5−1000)
Coefficient of determination (r^2)	0.9992
LOD (µM)	0.5197
slope	0.0108
Intercept	1.026
SE of slope (S_b)	0.0001
SE of intercept (S_a)	0.0002
SE of residuals ($S_{y/x}$)	0.0126

Table S3: Regression data and statistical parameters for determination of dopamine in simulated blood matrix using the developed colorimetric method.

Parameter	value
Linearity range (µM)	(5−1000)
Coefficient of determination (r^2)	0.9977
LOD (µM)	1.5089
slope	0.0109
Intercept	0.9685
SE of slope (S_b)	0.0003
SE of intercept (S_a)	0.0158
SE of residuals ($S_{y/x}$)	0.021