Effects of G-quadruplex-binding plant secondary metabolites on c-MYC expression

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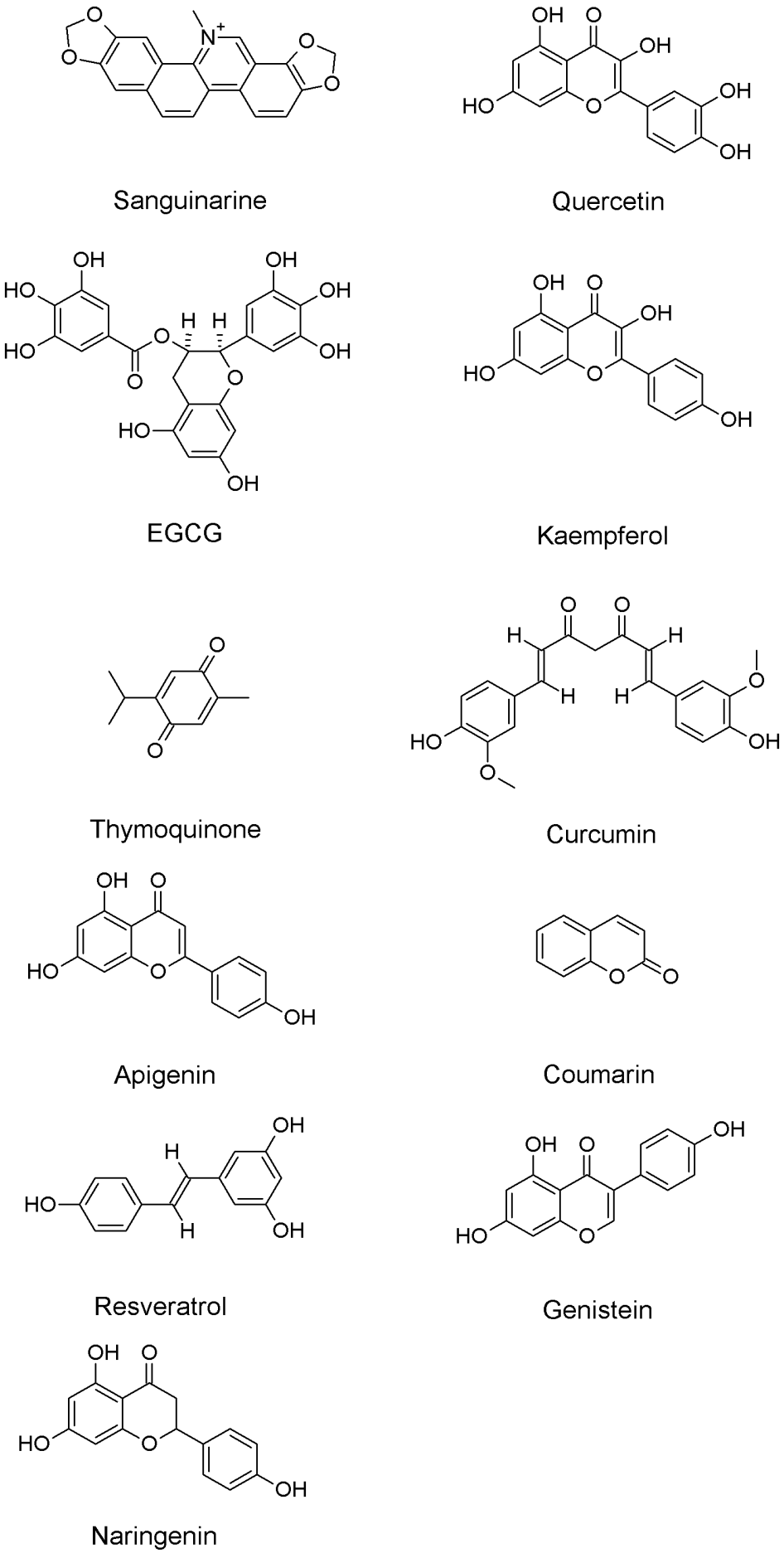


Figure S1. Structural formulae of plant secondary metabolites.

Table S1. IC_{50}, IC_{20} and applied nontoxic concentrations of PSMs in cancer and immortalized cell lines, μM.

Polyphenol	Cell viability	Cell line			
		HeLa	HT1080	NKE-hTERT	HaCaT
Sanguinarine	Applied concentrations	0.16	0.16	0.16	0.16
	IC_{20}	0.54±0.09	0.32±0.04	0.73±0.06	0.54±0.05
	IC_{50}	1.19±0.08	0.69±0.04	2.33±0.19	1.50±0.16
Quercetin	Applied concentrations	8	8	8	8
	IC_{20}	23±12	19±1	31±5	56±3
	IC_{50}	47±16	108±6	109±4	355±76
Kaempferol	Applied concentrations	4	4	32	4
	IC_{20}	14±1	11±1	98±8	13±2
	IC_{50}	73±20	61±1	382±8	54±3
Thymoquinone	Applied concentrations	14	14	14	3.5
	IC_{20}	22±1	20±1	19±1	9±1
	IC_{50}	38±18	35±13	61±3	47±3

Figure S2. Thiazole orange displacement from G4s by PSMs. Fluorescence intensity-concentration curves of all compounds.

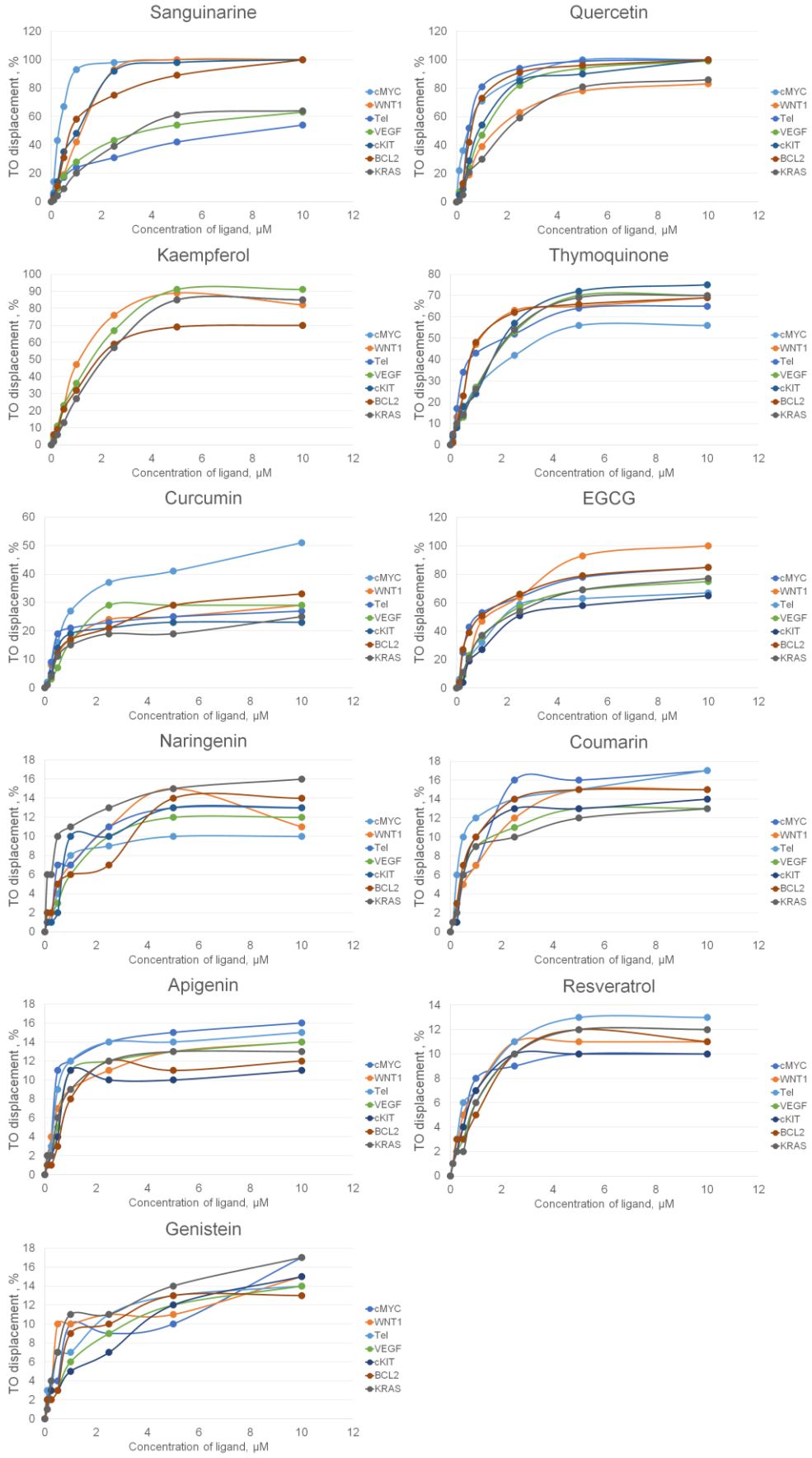
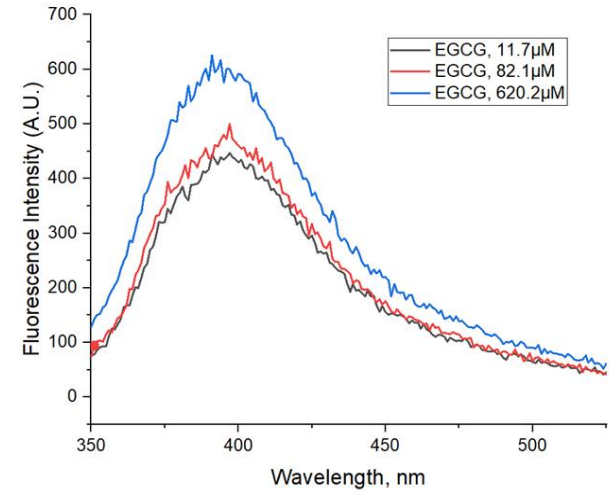
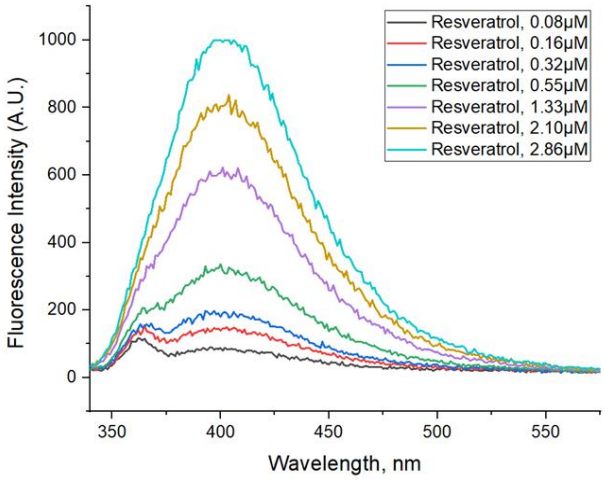


Table S2. Fluorescence data of the PSMs.

Polyphenol	Excitation	Emission	Laser voltage	Influence on the fluorescence of thiazole orange	Fluorescence
EGCG	328 nm	391 nm	900 v	No influence	Low level
Resveratrol	319 nm	400 nm	900 v	No influence	High level
Sanguinarine	480 nm	600 nm	900 v	No influence	High level
Thymoquinone	-	-	-		None
Kaempferol	-	-	-		None
Genistein	-	-	-		None
Quercetin	-	-	-		None
Naringenin	-	-	-		None
Apigenin	-	-	-		None
Coumarin	-	-	-		None
Curcumin	-	-	-		None

Figure S3. Fluorescence spectra of the PSMs.





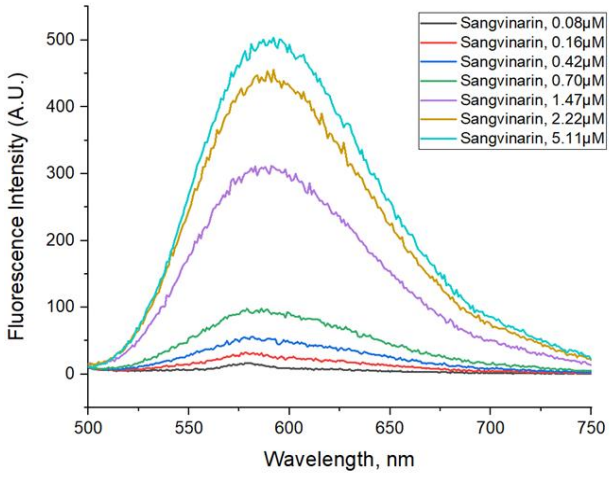


Table S3. Sanguinarine-induced expression changes in a set of target genes of signal pathways. Concentrations of PSMs are presented as μM.

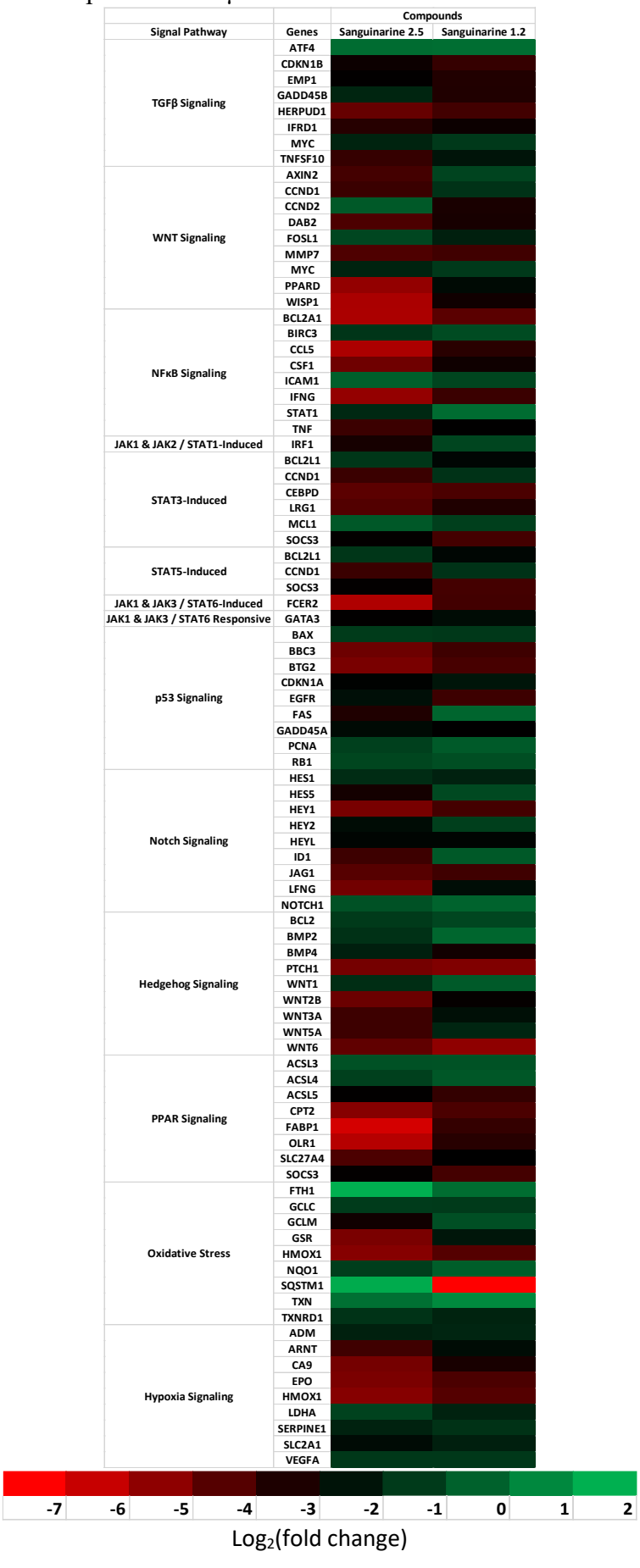


Figure S4. CD spectra of c-MYC G4 (~4 μM oligonucleotide strand concentration) supplemented with 2 equivalent of kaempferol (A) or thymoquinone (B) and 1 equivalent of dsDNA. The measurements were carried out at room temperatures in buffer B.