

**Supporting information.**

**Determination of HO• rate constants by a High-Throughput Fluorimetric Assay  
Towards an unified reactivity scale for antioxidants**

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<sup>b</sup>CEA Fontenay aux Roses, DSV/iRCM/SEGG 92265-Fontenay aux Roses Cedex

<sup>c</sup>CEA Saclay, DSV/iBiTec-S/SCBM, 91191 - Gif sur Yvette Cedex

<sup>d</sup>CNRS, URA 311, F-91191 - Gif sur Yvette Cedex

**Figure S1** : determination of the reaction rate of coumarin with HO•

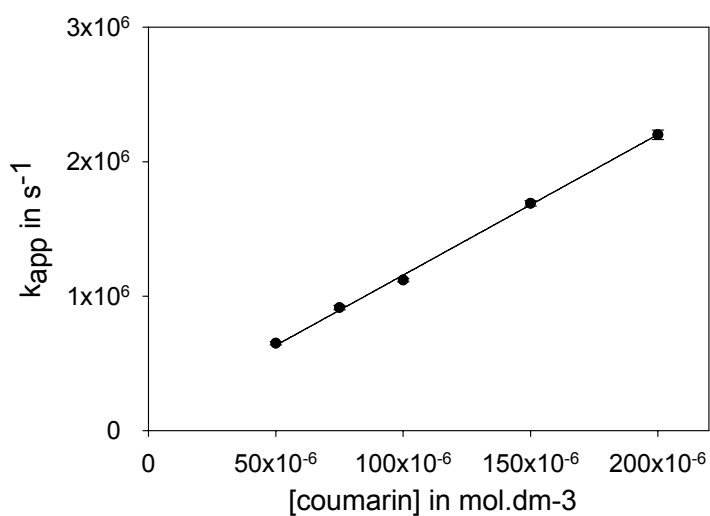
**Figure S2** : organisation of a microplate

**Figure S3** : set of molecules used to validate the method

**Figure S4** : determination of the reaction rate of methacrylate with HO•

**Figure S-1**

The apparent rate constant of HO<sup>•</sup> with coumarin was determined following the absorption at 350 nm of the hydroxycyclohexadienyl radical, produced by the addition of HO<sup>•</sup> on the B ring of coumarin



*figure S-1 – Dependence of the rate  $k_{app}$  of formation of the hydroxycyclohexadienyl radical on the coumarin concentration.  $k_{app}$  were determined from monoexponential fit of the transient absorbance measured at 350nm*

### Figure S2

On figure S-2 is displayed the plate organisation. Molecules are treated 8 at a time over the different lines of the microplates, and successive dilutions are then conducted along the lines. Columns 1 and 12 are left with water, 2 and 11 are standards containing coumarin only.

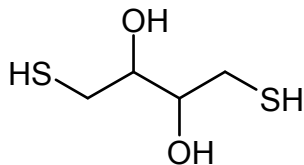
water	standard (coumarin only)	A1	decreasing concentration →						standard (coumarin only)	water
		A2								
		A3								
		---								
		---								
		Ai								

*Figure S-2 : Microplate organisation*

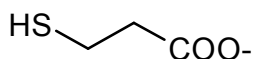
**Figure S3**

*Set of molecules used to validate the screening method*

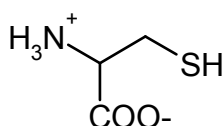
**Dithiothreitol**



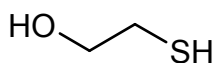
**3-mercaptopropionate:**



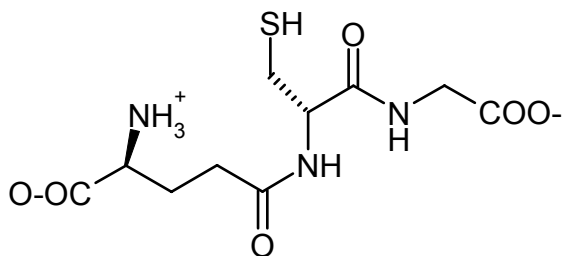
**Cysteine:**



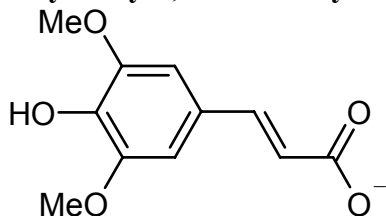
**2-mercaptoethanol:**



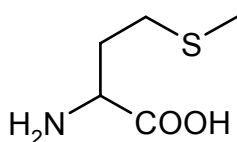
**Glutathion**



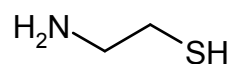
**4-hydroxy-3,5 dimethoxycinnamate**



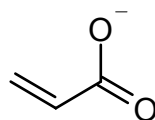
**Méthionine**



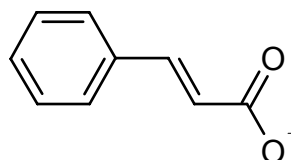
**Cystéamine:**



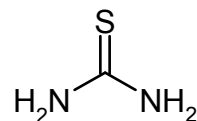
**Methacrylate:**



**Cinnamate**



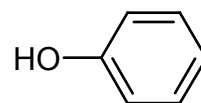
**Thiourea**



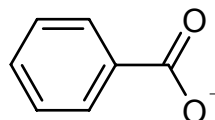
**Thiocyanate**

SCN<sup>-</sup>

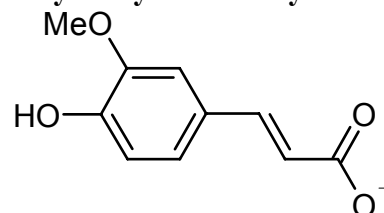
**Phénol**



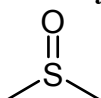
**Benzoate**



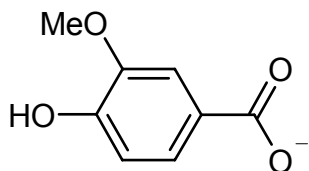
**4-hydroxy-3-methoxycinnamate**



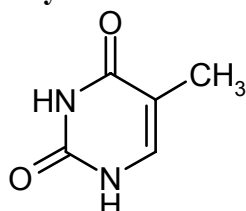
**Dimethylsulfoxide**



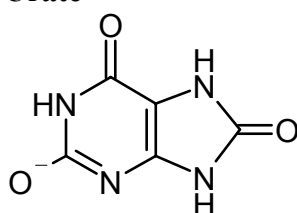
**4-hydroxy-3-methoxybenzoate (vanillate)**



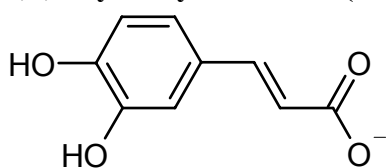
**Thymine**



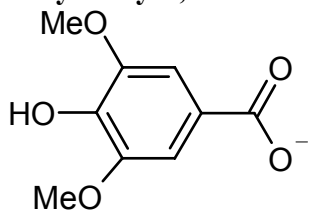
**Urate**



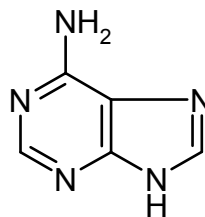
**3,4-dihydroxycinnamate (caffeate)**



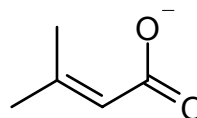
**4-Hydroxy-3,5-dimethoxybenzoate**



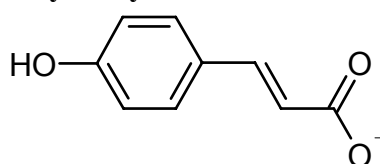
**Adenine**



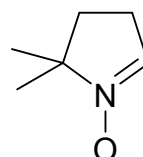
**3,3-dimethylacrylate**



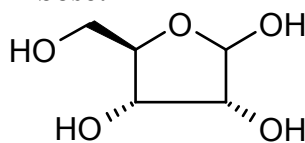
**4-hydroxycinnamate**



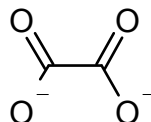
**5,5-dimethyl-1-pyrroline N-oxide (DMPO)**



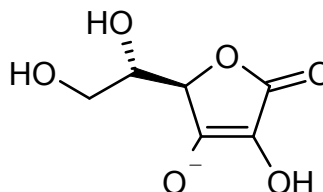
**Ribose:**



**Oxalate**



**Ascorbate**



### Figure S4

The apparent rate constant of HO<sup>•</sup> with methacrylate was determined following the absorption at 320 nm of the radical, produced by the addition of HO<sup>•</sup> on this compound. (figure S3)

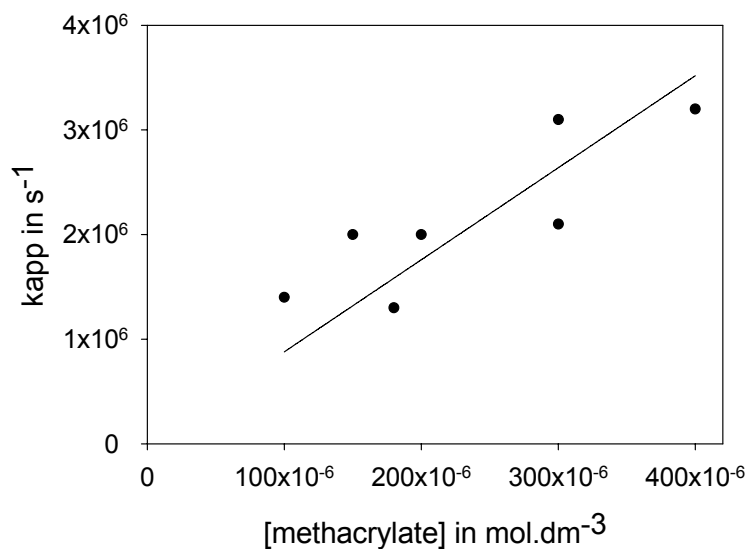


Figure S-4 : Dependence of the rate  $k_{app}$  of formation of the hydroxymethacryl radical on the methacrylate concentration.  $k_{app}$  were determined from monoexponential fit of the transient absorbance measured at 320nm