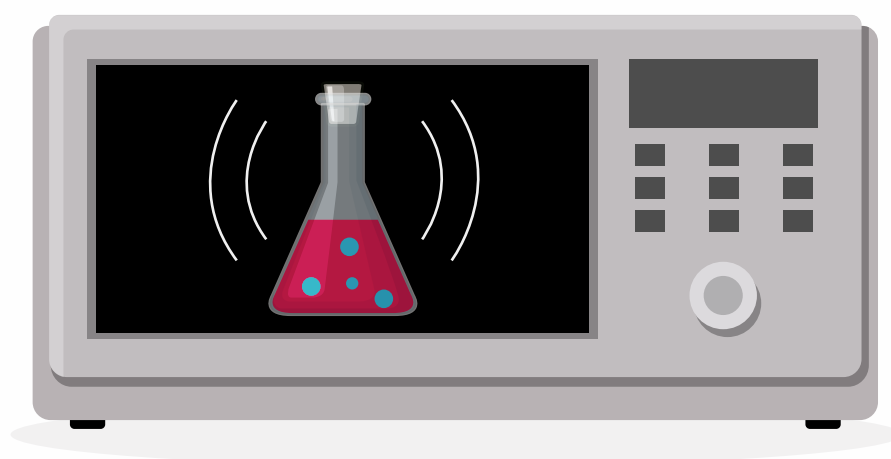


Microwave-Assisted Synthesis of Alkoxy- and Methyl Thio-Chalcones Yields Anticancer Leads with Low Vero-Cell Toxicity

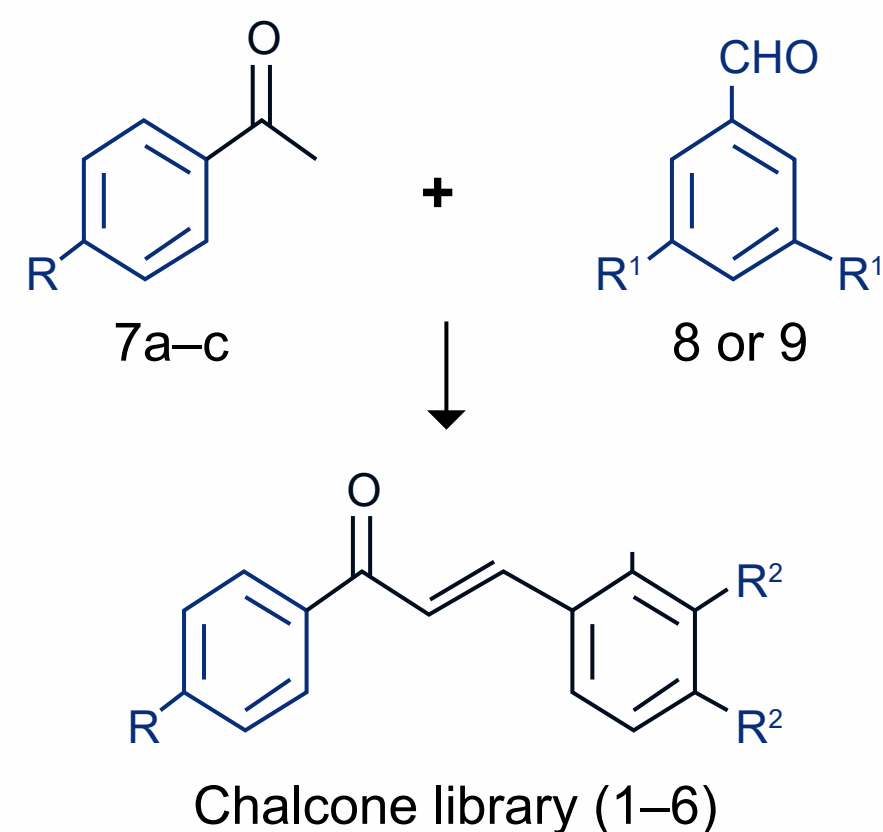
Rapid Microwave-based Synthesis



MAOS

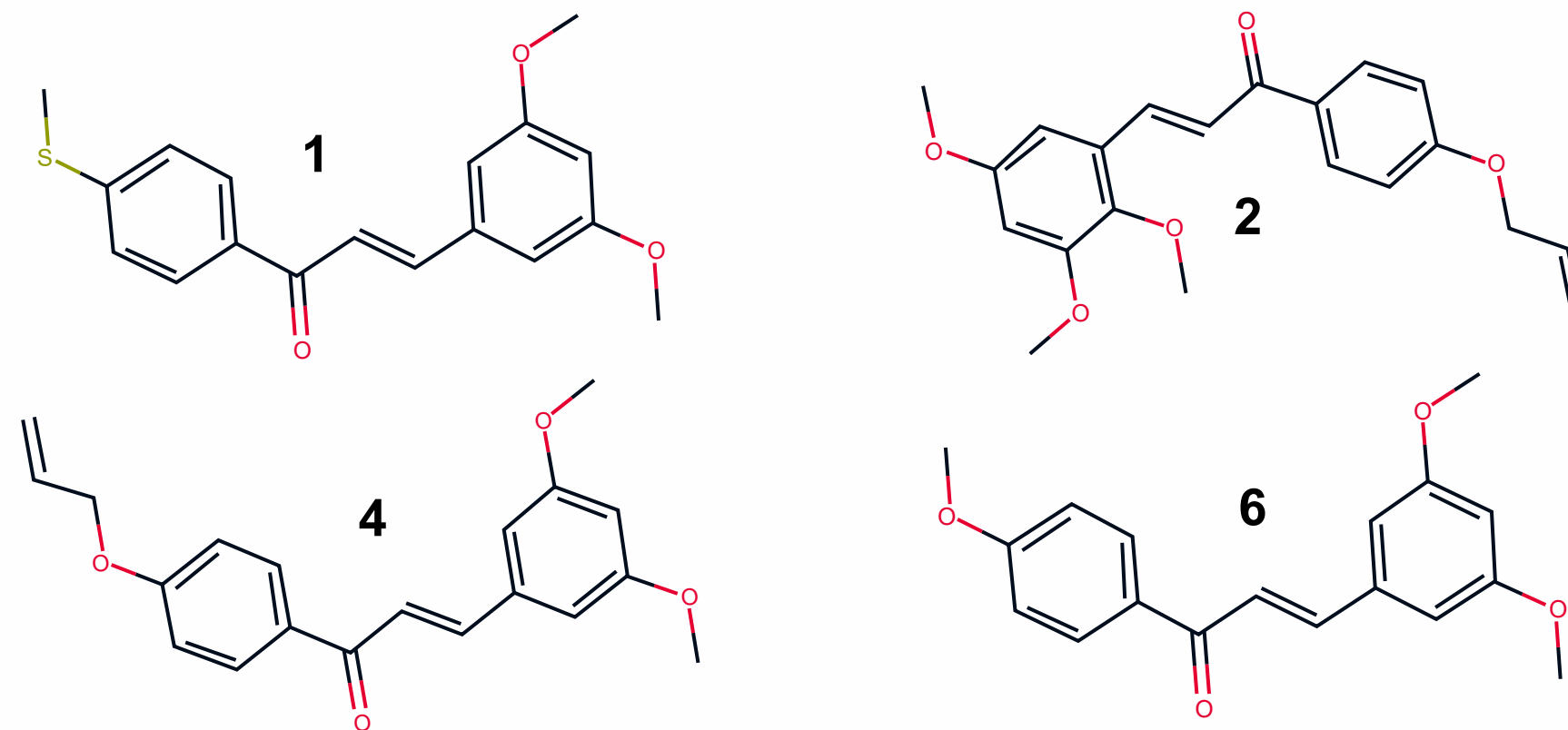
20 minutes

87–90% yield

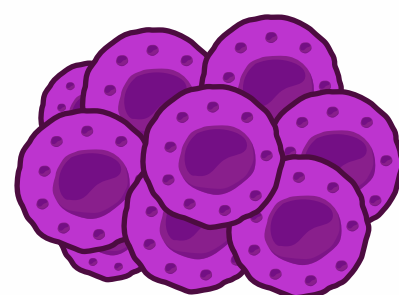


Microwave-assisted synthesis with high yield

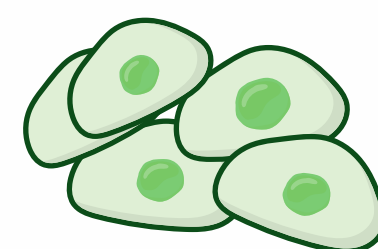
Lead Chalcones and Anticancer Activity



Lead	Cell line	IC ₅₀ (μg mL ⁻¹)
1	HeLa (cervical)	28.47 ± 0.41
2	T47D (breast)	17.85 ± 0.84
4	MCF-7 (breast)	15.89 ± 0.79
6	T47D (breast)	29.09 ± 0.37

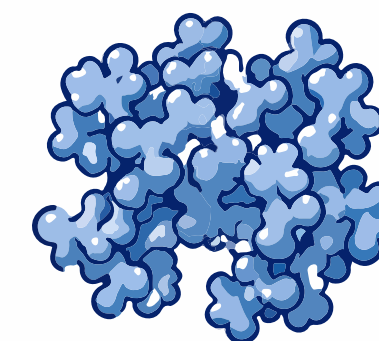


Cancer cells
IC₅₀ < 30 μg/mL

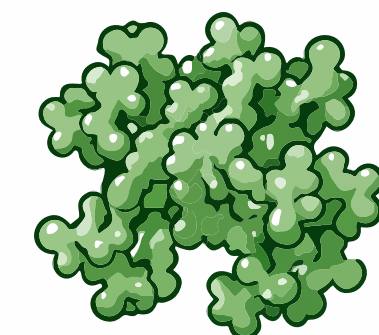


Normal cells
(Vero)
Low toxicity

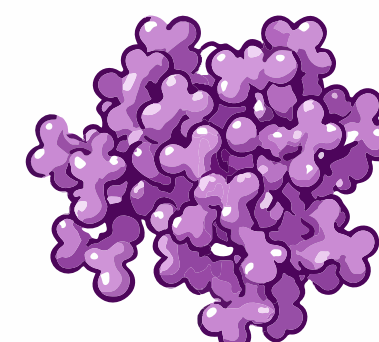
Mechanistic Insights (*in silico*)



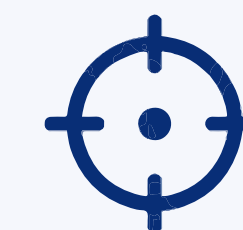
SIRT1 (4I5I)
T47D



ERα Y537S (6CBZ)
MCF-7



Caspase-3 V266A
(5I9B)
HeLa



Binding affinity
< −5 kcal mol⁻¹



Lipinski compliant



Lead chalcones 1, 2, 4, and 6 combine rapid synthesis, potent anticancer activity, and favourable predicted target interactions