



SUPPLEMENTARY MATERIAL TO
**Synthesis and mechanism of formation of hybrid structures
comprising 2-oxochromene, thiazole and hydrazilidenechromene
fragments**

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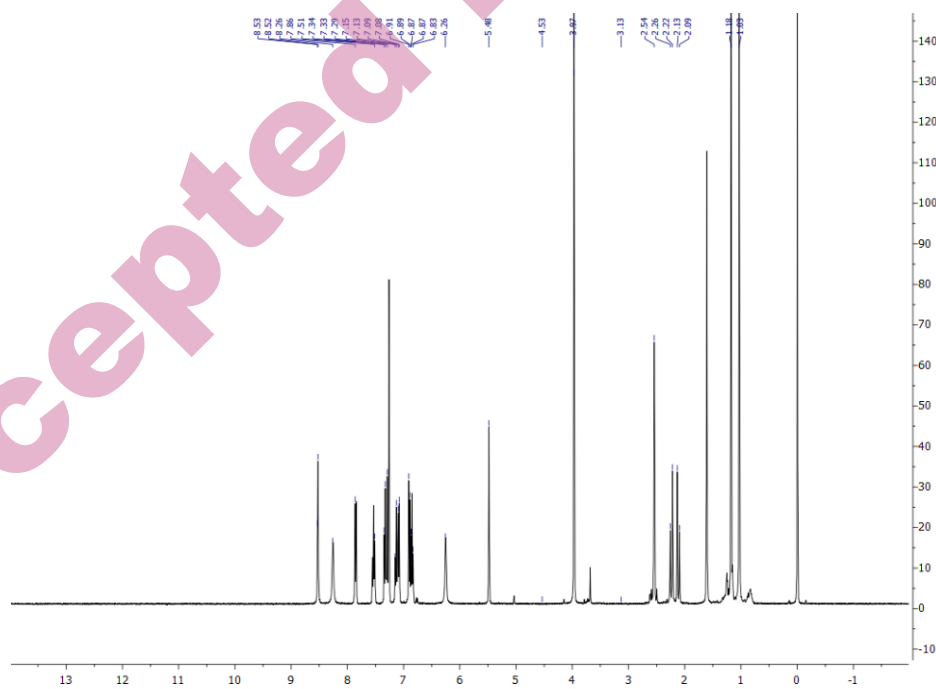


Figure S1. ¹H NMR spectrum of 2-(7-(2-methoxyphenyl)-10,10-dimethyl-6-oxo-7,9,10,11-tetrahydro-6H,8H-chromeno[4,3-b]chromene -8-ylidene)hydrazine-1-carbothioamide (**3a**), CDCl₃

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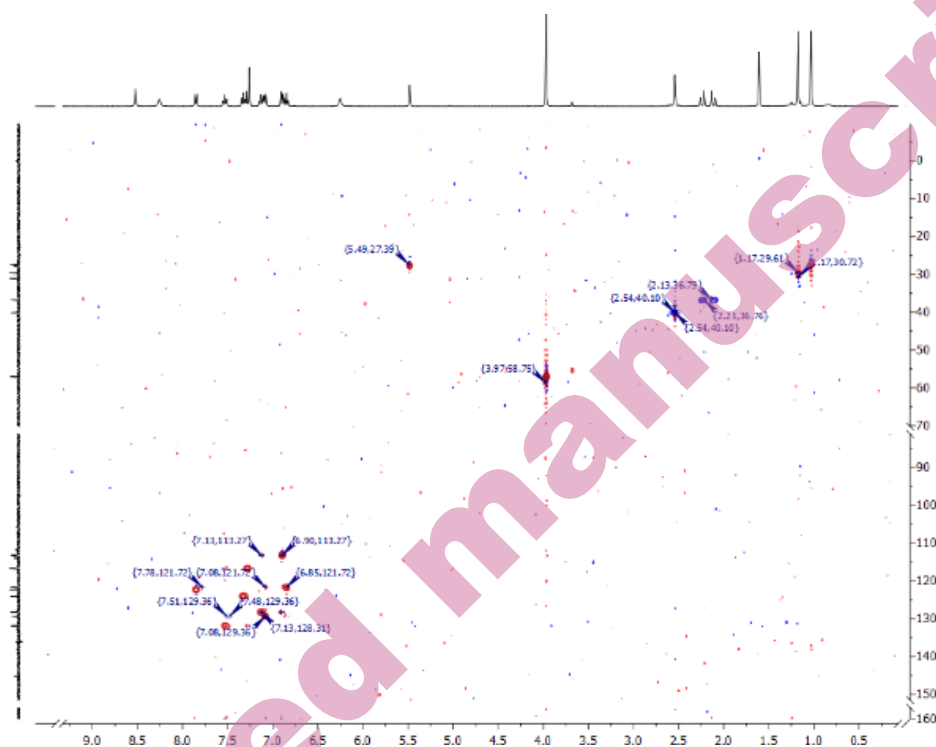


Figure S2. HSQC spectra of 2-(7-(2-methoxyphenyl)-10,10-dimethyl-6-oxo-7,9,10,11-tetrahydro-6H,8H-chromeno[4,3-b] chromene-8-ylidene)hydrazine-1-carbothioamide (**3a**), CDCl_3



Figure S3. HMBC spectra of 2-(7-(2-methoxyphenyl)-10,10-dimethyl-6-oxo-7,9,10,11-tetrahydro-6H,8H-chromeno[4,3-b] chromene-8-ylidene)hydrazine-1-carbothioamide (**3a**), CDCl_3

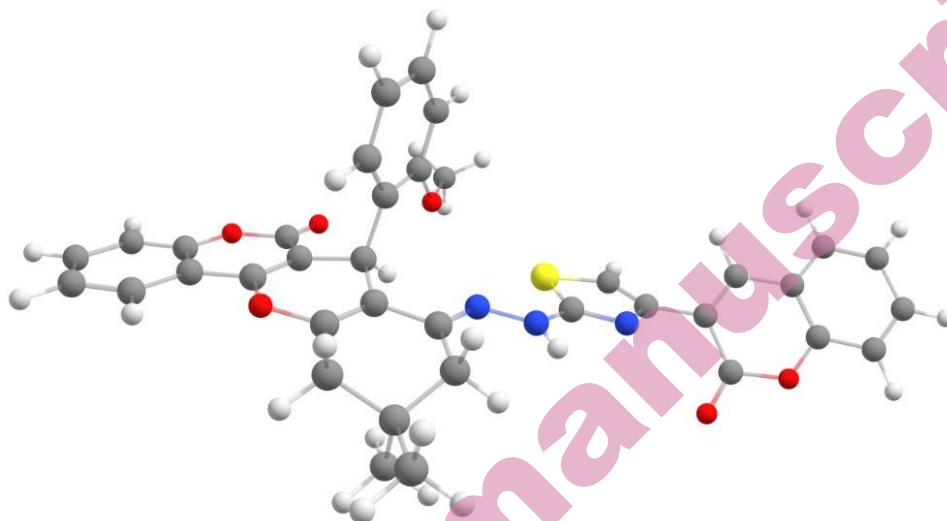


Figure S4. Optimized geometry of 7-(2-methoxyphenyl)-10,10-dimethyl-8-(2-(4-(2-oxo-2H-chromen-3-yl)thiazol-2-yl)hydrazino)-8,9,10,11-tetrahydrochromeno[4,3-b]chromen-6(7H)-one (**5'a**)

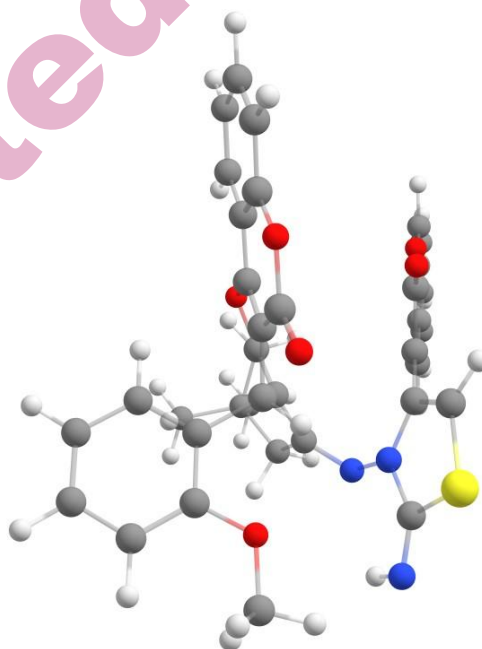


Figure S5. Optimized geometry of 8-((2-imino-4-(2-oxo-2H-chromen-3-yl)thiazol-3(2H)-yl)imino)-7-(2-methoxyphenyl)-10,10-dimethyl-8,9,10,11-tetrahydrochromeno[4,3-b]chromen-6(7H)-one (**6a**)

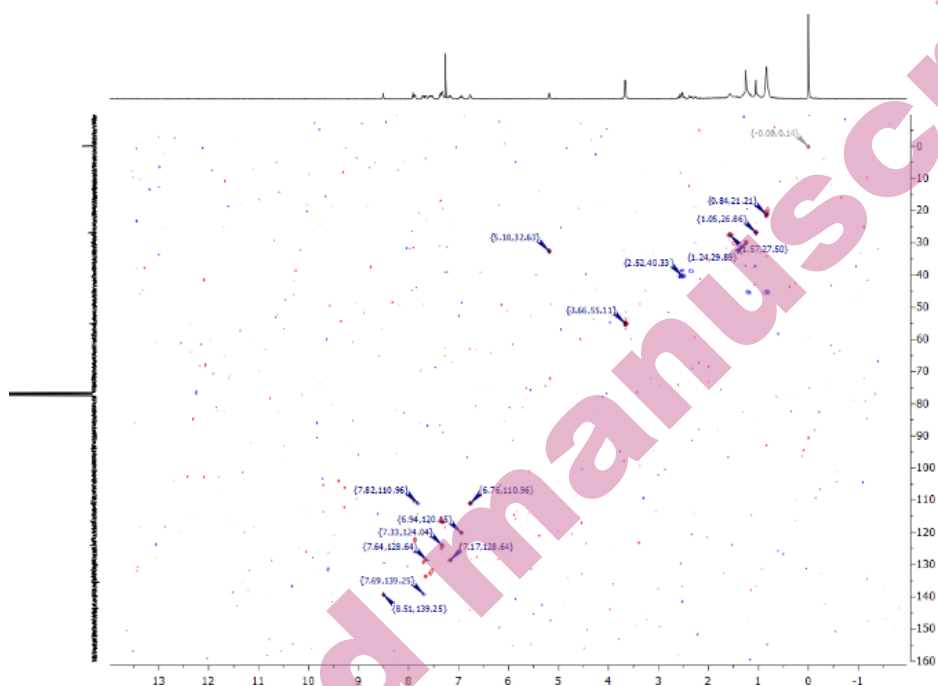


Figure S6. HSQC spectra of 10,10-dimethyl-8-(2-(4-(2-oxo-2H-chromen-3-yl)thiazol-2-yl)hydrazilidene)-7-(2-methoxyphenyl)-8,9,10,11-tetrahydro-6H,7H-chromeno[4,3-b]chromene-6-one (**5a**), CDCl₃



Figure S7. HMBC spectra of 10,10-dimethyl-8-(2-(4-(2-oxo-2H-chromen-3-yl)thiazol-2-yl)hydrazilidene)-7-(2-methoxyphenyl)-8,9,10,11-tetrahydro-6H,7H-chromeno[4,3-b]chromene-6-one (**5a**), CDCl₃

		Exp (CDCl ₃)	
5a	5,7079 H ₅₂ (CH)	5,6405 H ₅₂ (CH)	
	6,787 H ₆₂ (CH)	6,9343 H ₆₂ (CH)	
	8,065 H ₆₃ (CH)	8,4178 H ₆₃ (CH)	5,17 H ₅₂ (CH)
	9,8601 H ₆₁ (NH)	9,9276 H ₆₁ (NH)	7,91 H ₆₂₍₆₈₎ (CH)
5'a	6,1523 H ₅₂ (CH)	6,0532 H ₅₂ (CH)	8,53 H ₆₃₍₆₉₎ (CH)
	6,8684 H ₆₈ (CH)	7,0554 H ₆₈ (CH)	10,61 H ₆₁₍₆₇₎ (NH)
	7,7973 H ₆₉ (CH)	8,1128 H ₆₉ (CH)	
	8,27 H ₆₇ (NH)	8,46 H ₆₇ (NH)	
5b	5,6635 H ₅₄ (CH)	5,5913 H ₅₄ (CH)	
	6,7941 H ₆₃ (CH)	6,9449 H ₆₃ (CH)	
	8,0588 H ₆₄ (CH)	8,4164 H ₆₄ (CH)	5,09 H ₅₄₍₅₃₎ (CH)
	9,8933 H ₆₂ (NH)	9,9645 H ₆₂ (NH)	7,87 H ₆₃₍₆₉₎ (CH)
5'b	6,0381 H ₅₃ (CH)	5,9312 H ₅₃ (CH)	8,48 H ₆₄₍₇₀₎ (CH)
	6,883 H ₆₉ (CH)	7,0674 H ₆₉ (CH)	10,62 H ₆₂₍₆₈₎ (NH)
	7,7966 H ₇₀ (CH)	8,1104 H ₇₀ (CH)	
	8,2601 H ₆₈ (NH)	8,4557 H ₆₈ (NH)	
5c	5,6446 H ₅₂ (CH)	5,5869 H ₅₂ (CH)	
	6,7958 H ₆₂ (CH)	6,9445 H ₆₂ (CH)	
	8,0576 H ₆₃ (CH)	8,4179 H ₆₃ (CH)	5,23 H ₅₂ (CH)
	9,9938 H ₆₁ (NH)	10,0602 H ₆₁ (NH)	7,93 H ₆₂₍₆₈₎ (CH)
5'c	5,4408 H ₅₂ (CH)	5,3825 H ₅₂ (CH)	8,50 H ₆₃₍₆₉₎ (CH)
	6,8813 H ₆₈ (CH)	7,051 H ₆₈ (CH)	10,93 H ₆₁₍₆₇₎ (NH)
	7,8019 H ₆₉ (CH)	8,1115 H ₆₉ (CH)	
	8,1723 H ₆₇ (NH)	8,3877 H ₆₇ (NH)	
5d	5,6328 H ₅₄ (CH)	5,5729 H ₅₄ (CH)	
	6,7292 H ₆₃ (CH)	6,8766 H ₆₃ (CH)	
	8,0065 H ₆₄ (CH)	8,3662 H ₆₄ (CH)	5,14 H ₅₄₍₅₃₎ (CH)
	8,0065 H ₆₂ (NH)	9,9669 H ₆₂ (NH)	7,91 H ₆₃₍₆₉₎ (CH)
5'd	5,3841 H ₅₃ (CH)	5,3232 H ₅₃ (CH)	8,49 H ₆₄₍₇₀₎ (CH)
	6,9191 H ₆₉ (CH)	7,0928 H ₆₉ (CH)	10,62 H ₆₂₍₆₈₎ (NH)
	7,7911 H ₇₀ (CH)	8,106 H ₇₀ (CH)	
	8,1827 H ₆₈ (NH)	8,4012 H ₆₈ (NH)	
5e	5,6262 H ₅₃ (CH)	5,5702 H ₅₃ (CH)	
	6,7496 H ₆₂ (CH)	6,8976 H ₆₂ (CH)	
	8,0277 H ₆₃ (CH)	8,3876 H ₆₃ (CH)	5,23 H ₅₄₍₅₃₎ (CH)
	9,956 H ₆₁ (NH)	10,024 H ₆₁ (NH)	7,89 H ₆₃₍₆₉₎ (CH)
5'e	5,3814 H ₅₂ (CH)	5,3242 H ₅₂ (CH)	8,56 H ₆₄₍₇₀₎ (CH)
	6,9406 H ₆₈ (CH)	7,1132 H ₆₈ (CH)	10,74 H ₆₂₍₆₈₎ (NH)
	7,8108 H ₆₉ (CH)	8,125 H ₇₀ (CH)	
	8,179 H ₆₇ (NH)	8,3972 H ₆₇ (NH)	