

Supplementary Information for:

Inhibition of Heat Shock Induction of Heat Shock Protein 70 and Enhancement of Heat Shock Protein 27 Phosphorylation by Quercetin Derivatives and Analogs

Rongsheng E. Wang,[†] Jeffrey L.-F. Kao,[†] Carolyn A. Hilliard,[§] Raj K. Pandita,[§] Joseph L.
Roti Roti,[§] Clayton R. Hunt,[§] John-Stephen Taylor[†] *

*Department of Chemistry, Washington University, One Brookings Drive, St. Louis, Missouri
63130 and Radiation Oncology Department, Washington University School of Medicine, St.
Louis, MO 63108*

*To whom correspondence should be addressed: Phone: (314) 935-6721, FAX: (314) 935-4481, email:
taylor@wustl.edu.

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Table S1. Summary of HPLC purity analysis.

Compd	Method A				Method B			
	280 nM		254 nM		280 nM		254 nM	
	Retention time /min	Purity / %	Retention time /min	Purity / %	Retention time /min	Purity / %	Retention time /min	Purity / %
1	37.6	97.7	37.6	97.7	45.1	100	45.1	99.7
5	36.1	97.8	36.1	99.2	45.0	100	45.0	100
8	34.4	97.8	34.3	100	43.7	97.6	43.7	98.7
9	38.1	97.7	38.1	98.5	45.3	100	45.2	100
10	41.4	98.7	41.4	97.7	46.6	100	46.6	98.0

Method. Analytical HPLC purity test was performed in System Gold High Pressure Liquid Chromatography with a solvent pump module 125 and Model 168 diode array UV detector. A Waters XTerra MS C18 (5 μ m, 6 \times 250 mm) reverse phase column was used with two different solvent systems.

Gradient:

20 min, 10% to 30% linear gradient of solvent B in A

10 min, 30% to 50% linear gradient of solvent B in A

10 min, 50% to 100% linear gradient of solvent B in A

15 min, 100% to 10% solvent B.

Method A: Solvent A: water with 0.1% trifluoroacetic acid;

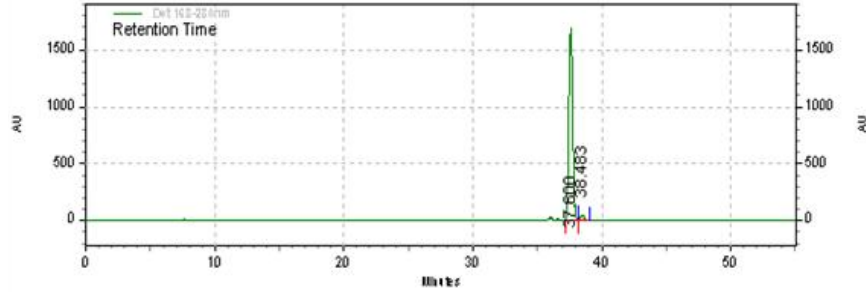
Solvent B: 80% acetonitrile/water with 0.1% trifluoroacetic acid.

Method B: Solvent A: water with 0.1% trifluoroacetic acid;

Solvent B: 80% methanol/water with 0.1% trifluoroacetic acid

Figure S1. HPLC of D1 with Method A.

Data File: D:\VSTlab\Rongsheng Wang\New Folder\w-D1-CD3CN-09152008-final.dat
 Method: D:\VSTlab\Rongsheng Wang\quercetin-standard-CH3CN.met
 Acquired: 9/16/2008 11:20:48 PM
 Printed: 11/08/2008 04:18:44 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
37.600	34880738	97.67	1685260	97.41
38.483	830584	2.33	44723	2.59

Totals	Area	Area %	Height	Height %
	35711322	100.00	1729983	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
37.600	34581267	97.54	1678201	97.18
38.483	873188	2.46	48782	2.82

Totals	Area	Area %	Height	Height %
	35454455	100.00	1726983	100.00

I: 254 nm, 4 nm

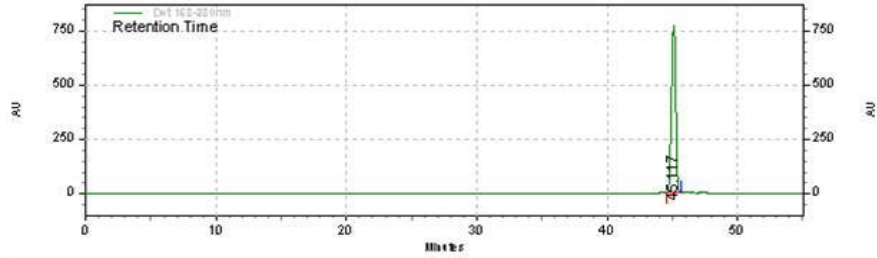
Results

Time	Area	Area %	Height	Height %
37.600	83064421	97.66	3426103	96.94
38.467	1993365	2.34	107986	3.06

Totals	Area	Area %	Height	Height %
	85057786	100.00	3534089	100.00

Figure S2. HPLC of D1 with Method B.

Data File: D:\UST1ab\Rongsheng Wang\New Folder\w-D1-methanol-4.dat
 Method: D:\UST1ab\Rongsheng Wang\quercetin-standard-CH3OH.met
 Acquired: 9/26/2008 11:21:05 PM
 Printed: 11/08/2008 04:54:57 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
45.117	17420644	100.00	766835	100.00
Totals	17420644	100.00	766835	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
45.117	17207074	100.00	760732	100.00
Totals	17207074	100.00	760732	100.00

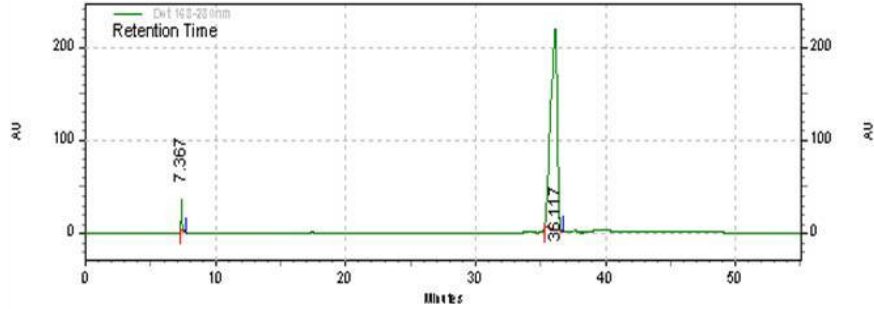
1: 254 nm, 4 nm

Results

Time	Area	Area %	Height	Height %
45.100	46645546	99.73	1991252	99.68
45.867	126939	0.27	6395	0.32
Totals	46772485	100.00	1997647	100.00

Figure S3. HPLC of D5 with Method A.

Data File: D:\STlab\Rongsheng Wang\New Folder\rw-d5-09212008-CH3CN-2.dat
 Method: D:\STlab\Rongsheng Wang\quercetin-standard-CH3CN.met
 Acquired: 9/21/2008 8:11:42 PM
 Printed: 11/08/2008 03:40:30 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
7.367	174338	2.23	32706	13.20
36.117	7631676	97.77	215058	86.80

Totals	Area	Area %	Height	Height %
	7806014	100.00	247764	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
7.367	60045	0.70	11541	4.64
36.117	8509412	99.30	236967	95.36

Totals	Area	Area %	Height	Height %
	8569457	100.00	248508	100.00

1: 254 nm, 4 nm

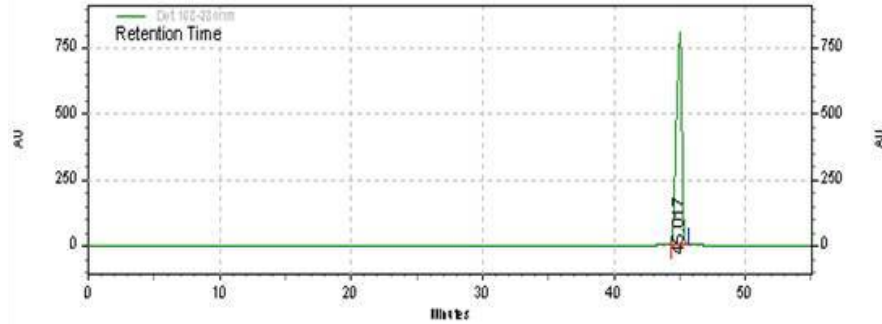
Results

Time	Area	Area %	Height	Height %
7.350	145976	0.78	34444	6.27
36.100	18501369	99.22	514843	93.73

Totals	Area	Area %	Height	Height %
	18647345	100.00	549287	100.00

Figure S4. HPLC of D5 with Method B.

Data File: D:\USTlab\Rongsheng Wang\New Folder\rw-D5-09192008-methanol-3.dat
 Method: D:\USTlab\Rongsheng Wang\quercetin-standard-CH3OH.met
 Acquired: 9/20/2008 12:55:54 AM
 Printed: 11/08/2008 04:50:28 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
45.017	23137920	100.00	800949	100.00
Totals	23137920	100.00	800949	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
45.017	25631179	100.00	887627	100.00
Totals	25631179	100.00	887627	100.00

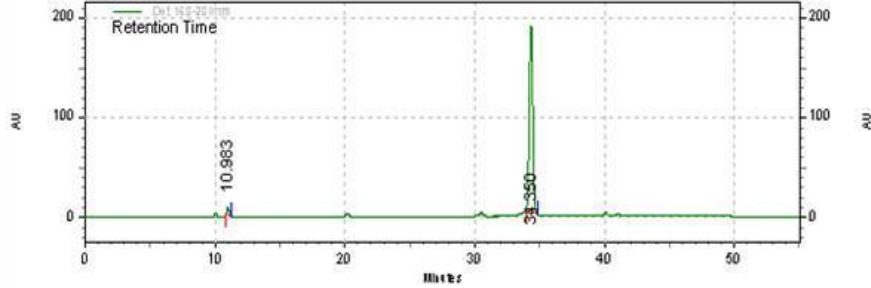
1: 254 nm, 4 nm

Results

Time	Area	Area %	Height	Height %
45.017	56208640	100.00	1922426	100.00
Totals	56208640	100.00	1922426	100.00

Figure S5. HPLC of D8 with Method A.

Data File: D:\UST1ab\Rongsheng Wang\New Folder\w-ch3cn-D8-09202008-1.dat
 Method: D:\UST1ab\Rongsheng Wang\quercetin-standard-CH3CN.met
 Acquired: 9/23/2008 7:25:20 PM
 Printed: 11/08/2008 04:00:02 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
10.983	79399	2.24	6633	3.45
34.350	3466994	97.76	185869	96.55

Totals	Area	Area %	Height	Height %
	3546393	100.00	192502	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
34.350	3759030	100.00	200531	100.00

Totals	Area	Area %	Height	Height %
	3759030	100.00	200531	100.00

1: 254 nm, 4 nm

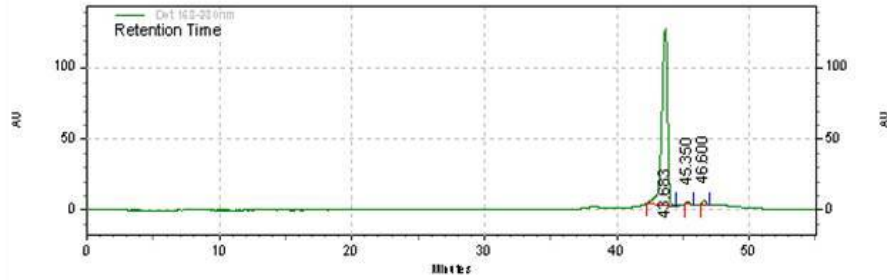
Results

Time	Area	Area %	Height	Height %
34.333	11221861	100.00	587384	100.00

Totals	Area	Area %	Height	Height %
	11221861	100.00	587384	100.00

Figure S6. HPLC of D8 with Method B.

Data File: D:\JSTlab\Rongsheng Wang\New Folder\rw-methanol-D8-09202008-3.dat
 Method: D:\JSTlab\Rongsheng Wang\quercetin-standard-CH3OH.met
 Acquired: 9/24/2008 1:00:58 AM
 Printed: 11/08/2008 04:36:38 PM



**Det 168-280nm
Results**

Time	Area	Area %	Height	Height %
43.683	3671148	97.61	124443	96.25
45.350	31659	0.84	1718	1.33
46.600	58075	1.54	3127	2.42
Totals	3760882	100.00	129288	100.00

**Det 168-300nm
Results**

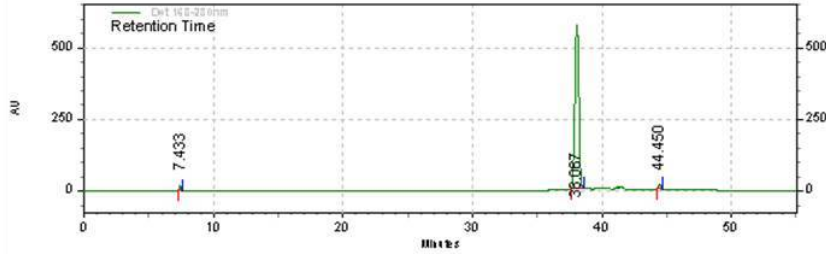
Time	Area	Area %	Height	Height %
43.683	3770913	97.63	129993	96.62
45.367	37818	0.98	1989	1.48
46.600	53762	1.39	2552	1.90
Totals	3862493	100.00	134534	100.00

**I: 254 nm, 4 nm
Results**

Time	Area	Area %	Height	Height %
43.683	11127026	98.68	389242	97.93
46.600	148352	1.32	8216	2.07
Totals	11275378	100.00	397458	100.00

Figure S7. HPLC of D9 with Method A.

Data File: D:\JST1ab\Rongsheng Wang\New Folder\w-D9-CH3CN-02.dat
 Method: D:\JST1ab\Rongsheng Wang\quercetin-standard-CH3CN.met
 Acquired: 9/26/2008 12:15:59 PM
 Printed: 11/08/2008 04:06:00 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
7.433	96800	0.76	18563	3.08
38.067	12369548	97.68	570413	94.59
44.450	197413	1.56	14093	2.34

Totals	Area	Area %	Height	Height %
	12663761	100.00	603069	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
38.067	10105549	98.57	465027	97.86
44.450	146586	1.43	10147	2.14

Totals	Area	Area %	Height	Height %
	10252135	100.00	475174	100.00

I: 254 nm, 4 nm

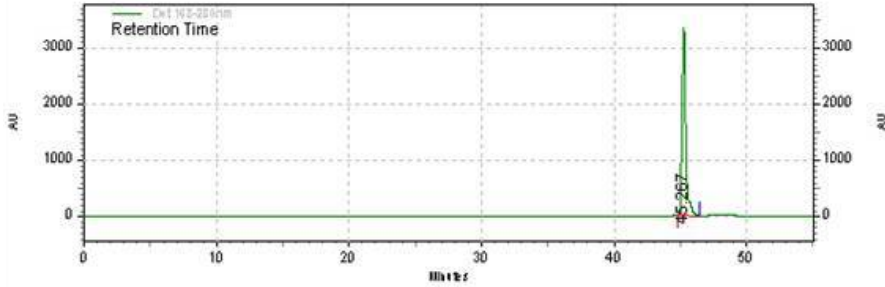
Results

Time	Area	Area %	Height	Height %
7.433	95033	0.28	14604	0.92
38.067	33818733	98.46	1538607	97.43
39.767	67046	0.20	4837	0.31
41.500	195551	0.57	9546	0.60
44.450	172942	0.50	11648	0.74

Totals	Area	Area %	Height	Height %
	34349305	100.00	1579242	100.00

Figure S8. HPLC of D9 with Method B.

Data File: D:\USTlab\Rongsheng Wang\New Folder\rw-D9-methanol-final.dat
 Method: D:\USTlab\Rongsheng Wang\quercetin-standard-CH3OH.met
 Acquired: 9/24/2008 11:44:24 PM
 Printed: 11/08/2008 04:40:20 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
45.267	65559480	100.00	3333031	100.00
Totals	65559480	100.00	3333031	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
45.267	48533457	100.00	2348179	100.00
Totals	48533457	100.00	2348179	100.00

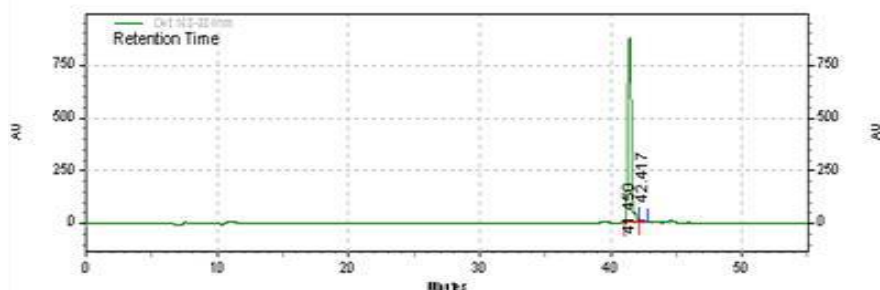
1: 254 nm, 4 nm

Results

Time	Area	Area %	Height	Height %
45.200	101053255	100.00	3447419	100.00
Totals	101053255	100.00	3447419	100.00

Figure S9. HPLC of D10 with Method A.

Data File: D:\USTlab\Rongsheng Wang\New Folder\w-Derivative10.dat
 Method: D:\USTlab\Rongsheng Wang\quercetin-standard-CH3CN.met
 Acquired: 1/4/2008 11:22:56 PM
 Printed: 11/08/2008 04:11:29 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
41.450	16266029	98.67	875354	98.73
42.417	219603	1.33	11250	1.27
Totals	16485632	100.00	886604	100.00

Det 168-300nm

Results

Time	Area	Area %	Height	Height %
41.450	12994252	96.79	690676	96.92
42.417	277567	2.07	12782	1.79
44.567	153380	1.14	9183	1.29
Totals	13425199	100.00	712641	100.00

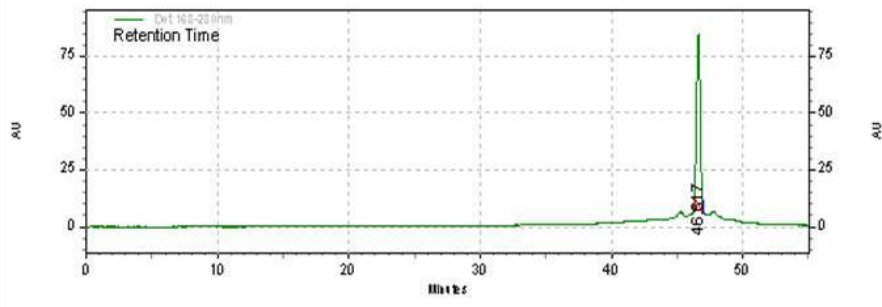
I: 254 nm, 4 nm

Results

Time	Area	Area %	Height	Height %
7.517	183025	0.42	10447	0.46
41.450	42675826	97.66	2209512	97.70
42.400	707665	1.62	33157	1.47
44.583	134012	0.31	8461	0.37
Totals	43700528	100.00	2261577	100.00

Figure S10. HPLC of D10 with Method B.

Data File: D:\USTlab\Rongsheng Wang\New Folder\w-D10-methanol-4.dat
 Method: D:\USTlab\Rongsheng Wang\quercetin-standard-CH3OH.met
 Acquired: 9/26/2008 5:55:19 PM
 Printed: 11/08/2008 04:46:15 PM



Det 168-280nm

Results

Time	Area	Area %	Height	Height %
46.617	1448686	100.00	75131	100.00

Totals	1448686	100.00	75131	100.00
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Det 168-300nm

Results

Time	Area	Area %	Height	Height %
46.617	1005033	100.00	54235	100.00

Totals	1005033	100.00	54235	100.00
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1: 254 nm, 4 nm

Results

Time	Area	Area %	Height	Height %
45.317	91422	1.96	4538	2.04
46.617	4576383	98.04	218035	97.96

Totals	4667805	100.00	222573	100.00
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