Supporting information

Nano-Scaling Law: Geometric foundation of Thiolated Gold Nanomolecules

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Figure S1. Expanded version of Figure 1 in main article.

Figure S2. Statistical terms in the log-log plot of number of thiolate ligands vs. gold atoms in thiolated gold nanomolecules. The standard error associated with the slope (1.82 ± 0.33) and the correlation (0.70 ± 0.04) of the allometric power fit and other correlation statistical terms are shown. The reduced chi-sqr and Adj. R-square of the fit are 2.67 and 0.99

Figure S3. Expanded version of Figure 2 in main article.

Figure S4. Original MALDI MS data used in Figure 2 of main article. In Figure 2, the break in the axis was used to highlight the Au49 region. Au144 spectrum was obtained in a separate synthesis and was included in the figure for completeness.

Figure S5. Expanded version of Figure 3 in main article.

Figure S6. Statistical terms in the log-log plot of number of thiolate ligands vs. gold atoms for the broader nanocluster data set shown in Figure 3 main article. The standard error associated with the slope (2.05 ± 0.05) and the correlation (0.666 ± 0.007) of the allometric power fit and other correlation statistical terms are shown. The reduced chi-sqr and Adj. R-square of the fit are 0.98 and 0.99

Table S1. Data set used in Figure 3.

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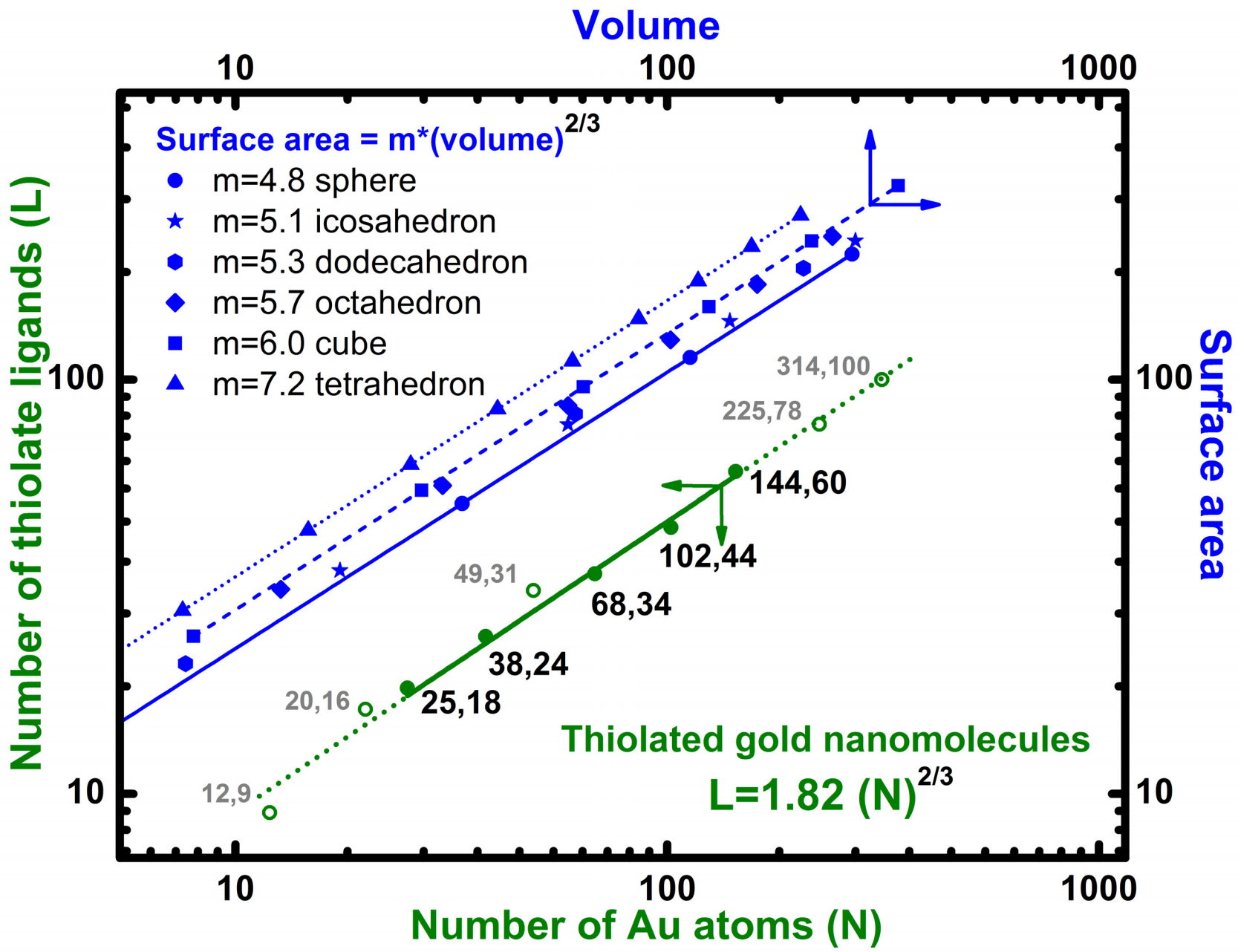

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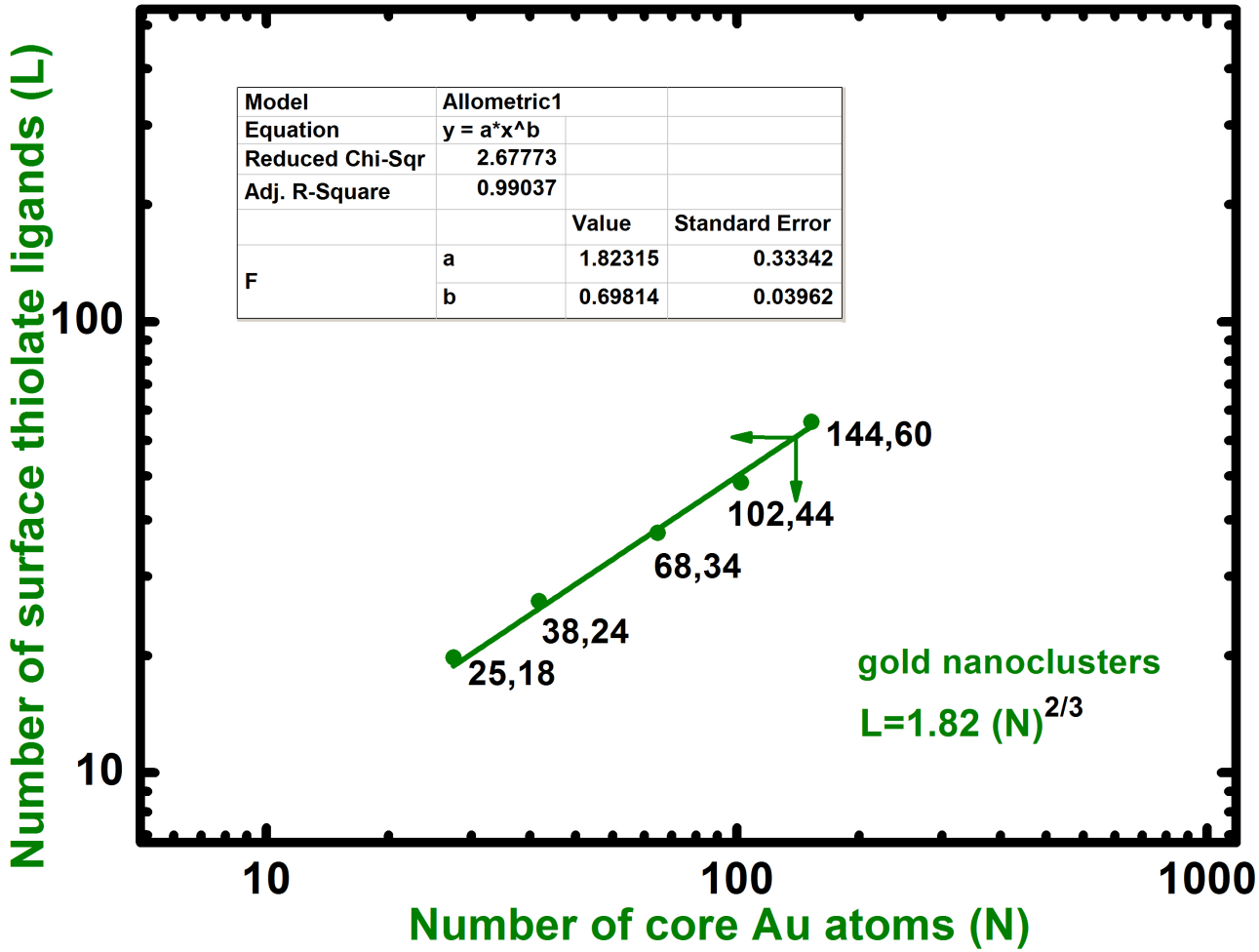

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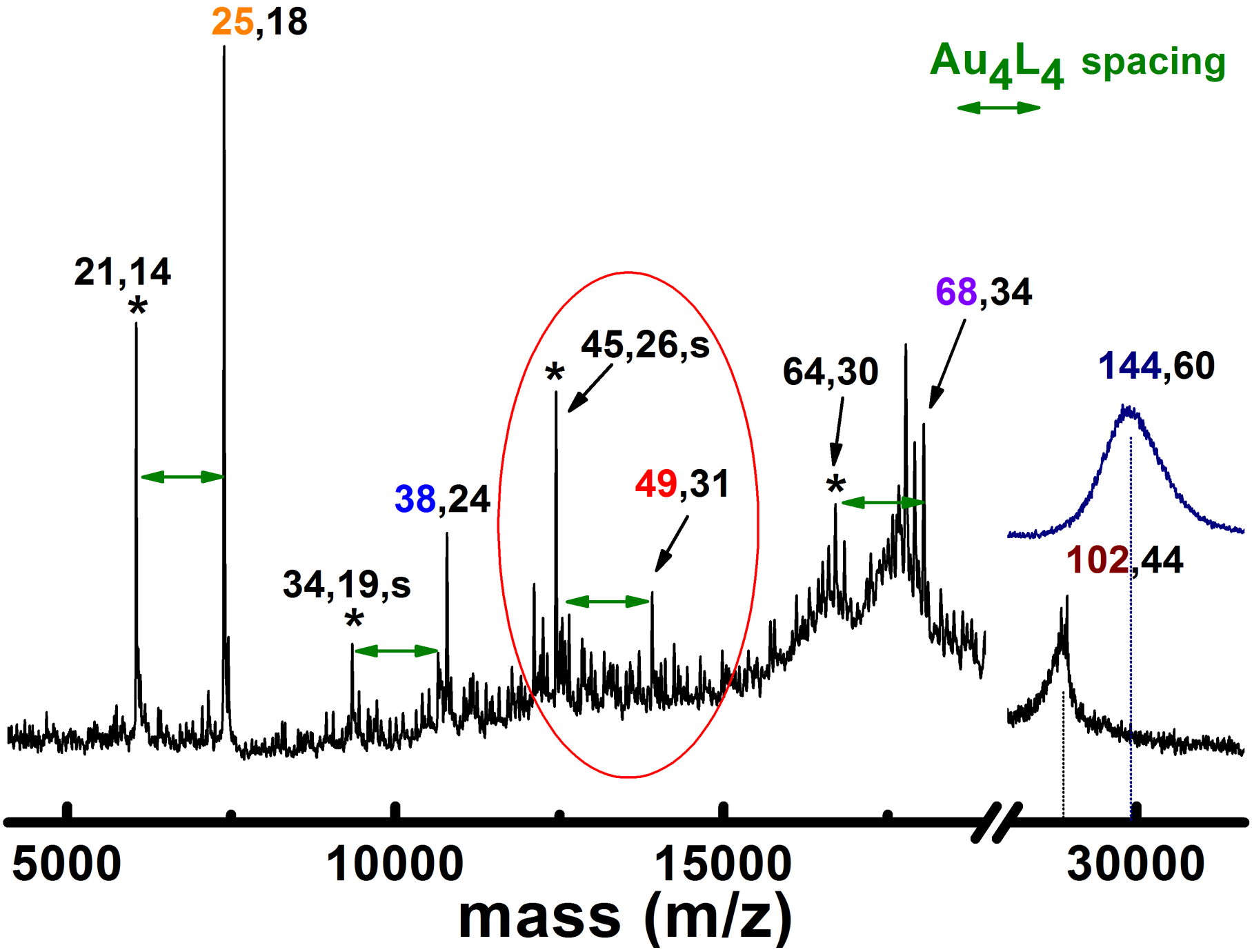
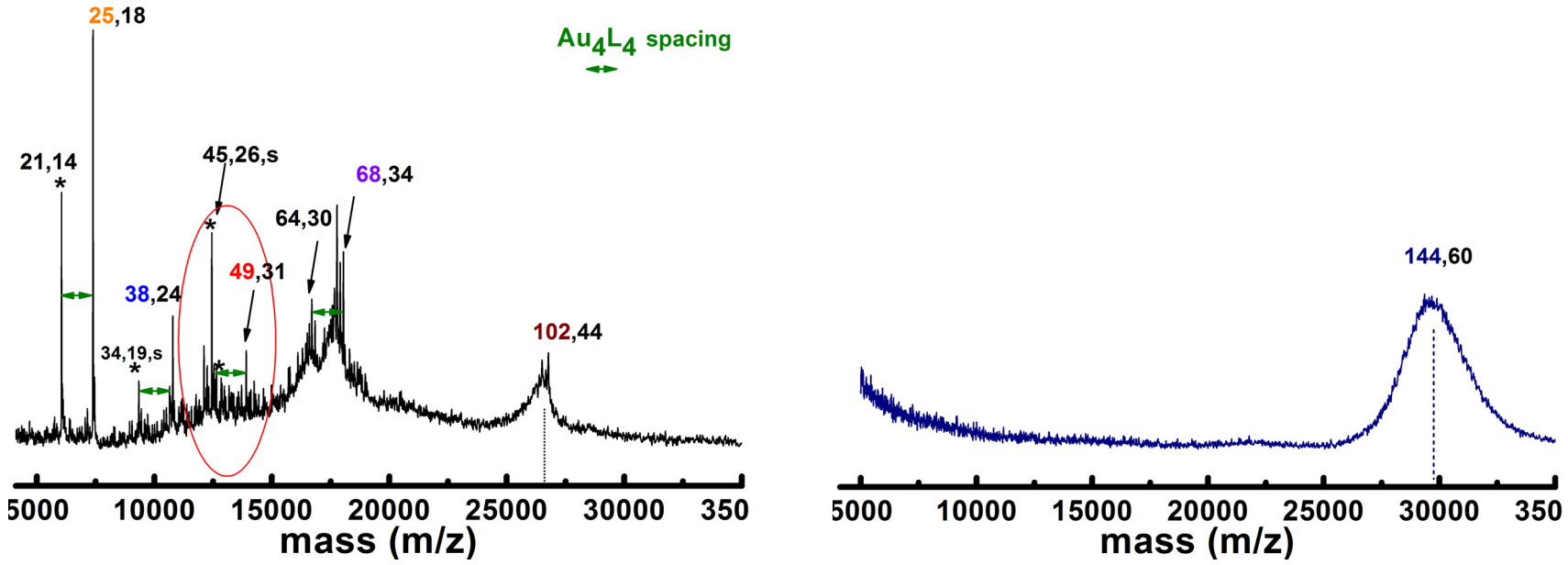


Figure S3. Expanded version of Figure 2 in main article.



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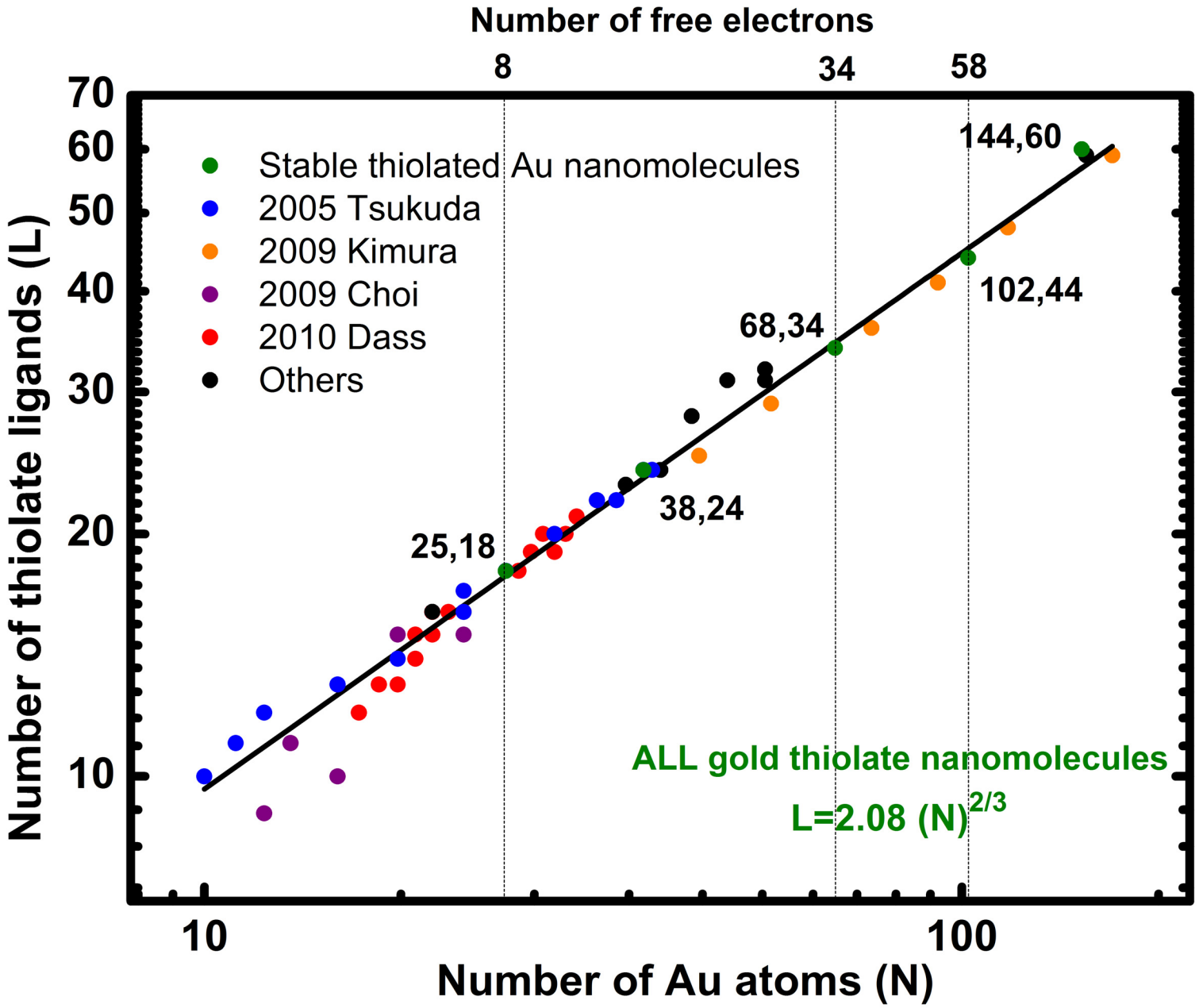

Figure S5. Expanded version of Figure 3 in main article.

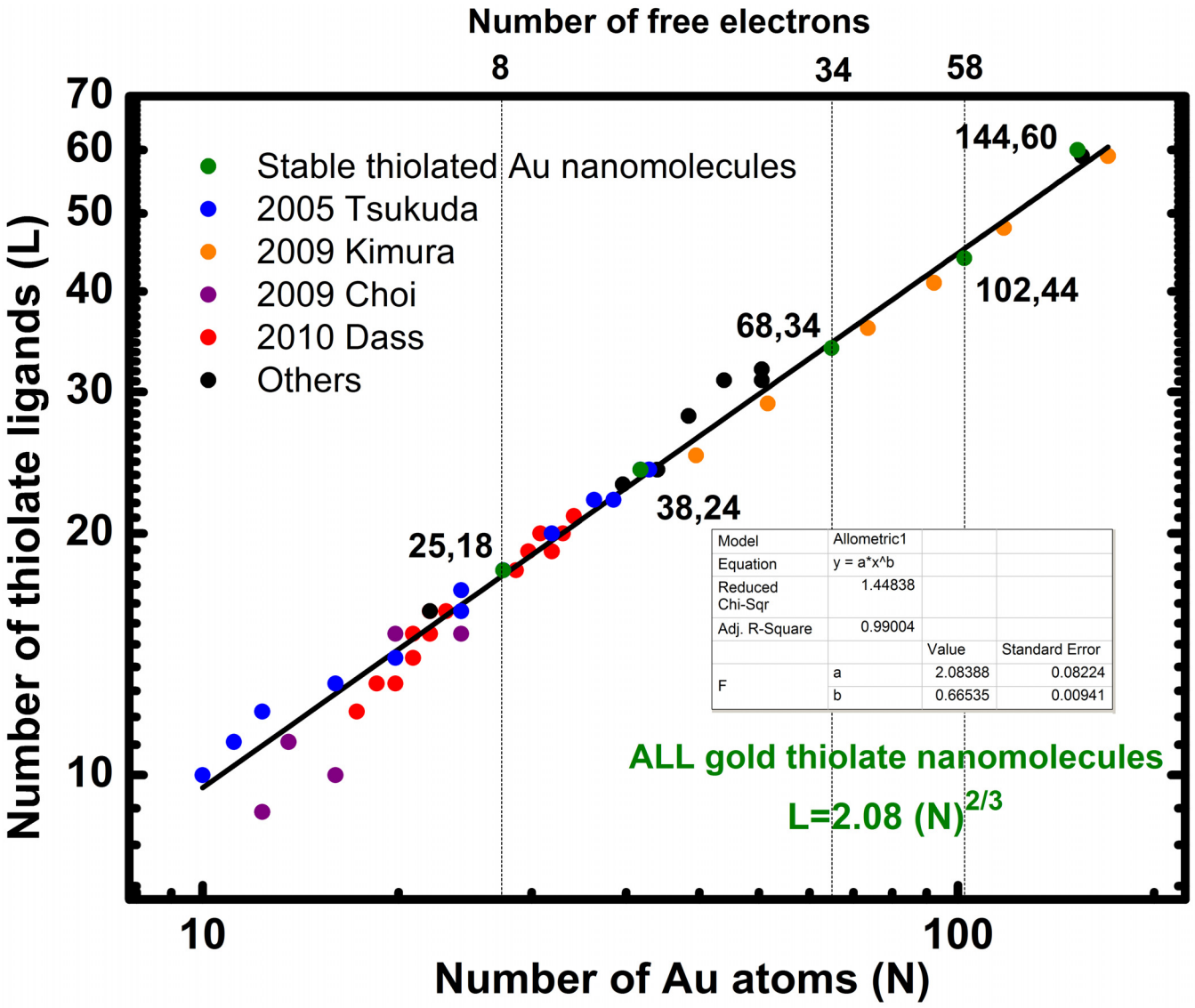

Figure S6. Statistical terms in the log-log plot of number of thiolate ligands vs. gold atoms for the broader nanocluster data set shown in Figure 3 main article. The standard error associated with the slope (2.08 ± 0.08) and the correlation (0.666 ± 0.009) of the allometric power fit and other correlation statistical terms are shown. The reduced chi-sqr and Adj. R-square of the fit are 1.44 and 0.99

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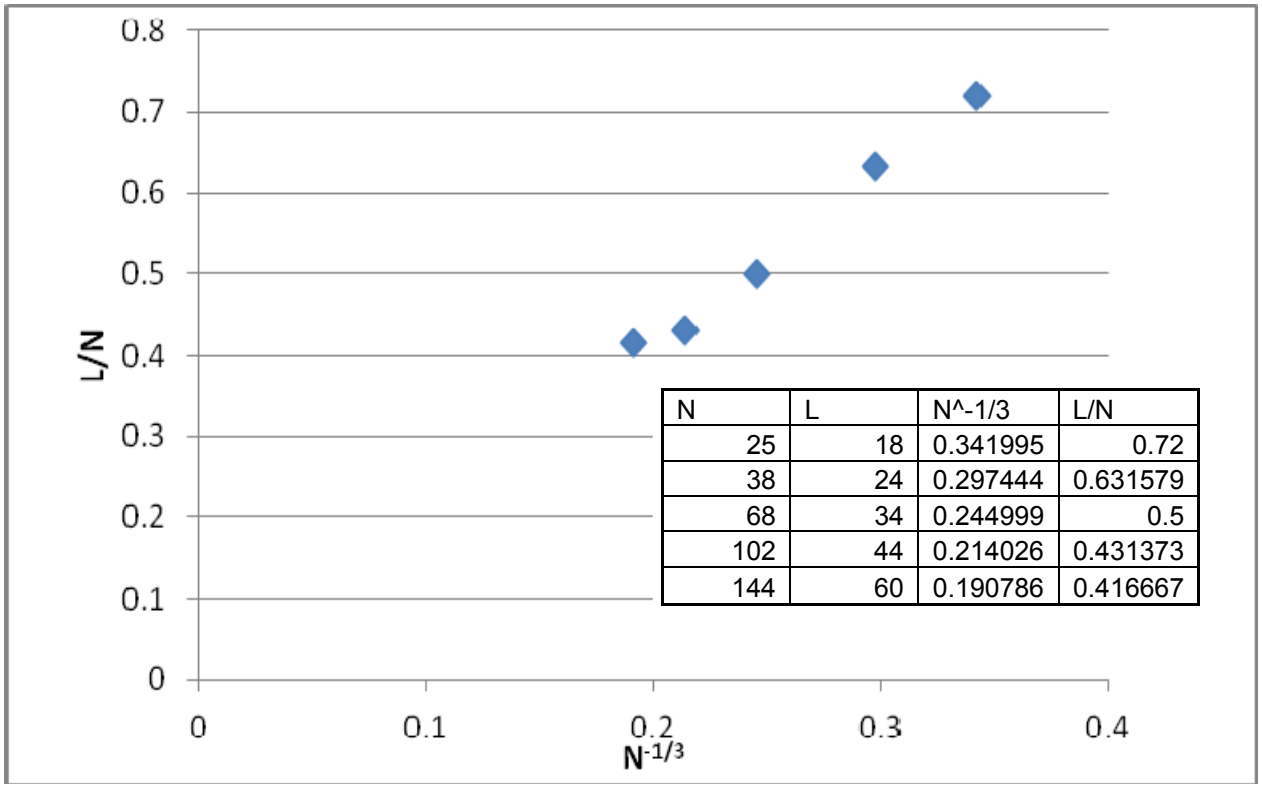

N	L	N^-1/3	L/N
25	18	0.341995	0.72
38	24	0.297444	0.631579
68	34	0.244999	0.5
102	44	0.214026	0.431373
144	60	0.190786	0.416667

Figure S7. Plot of L/N vs $N^{-1/3}$ showing that the trendline deviates at the bulk limit (as N approaches infinity)

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Stable thiolated Au nanomolecules	
Au atoms	Ligands
25	18
38	24
68	34
102	44
144	60

2009 Choi	
Au atoms	Ligands
10	10
12	9
13	11
15	10
18	15
22	15

Others	
Au atoms	Ligands
20	16
44	28
49	31

2005 Tsukuda	
Au atoms	Ligands
10	10
11	11
12	12
15	13
18	14
22	16
22	17
25	18
29	20
33	22
35	22
38	24
39	24

2009 Kimura	
Au atoms	Ligands
15	13
18	14
22	16
22	17
25	18
29	20
33	22
38	24
39	24
45	25
56	29
76	36
93	41
115	48
158	59

2010 Dass	
Au atoms	Ligands
16	12
17	13
18	14
19	15
20	16
18	13
19	14
20	15
21	16
22	17
26	18
27	19
28	20
29	19
30	20
31	21

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146	59
225	75
55	32
55	31
40	24
36	23

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