

Appendix

Appendix 1: Student Paired Sample T-test data analysis between AlbBCG and AlbNEPH.

Hypothesis	$H_0: \mu_{\text{AlbBCG}} = \mu_{\text{AlbNEPH}}$ $H_1: \mu_{\text{AlbBCG}} \neq \mu_{\text{AlbNEPH}}$	
Sample 1	AlbBCG_method	
Sample 2	AlbNEPH_method	
	Sample 1	Sample 2
Sample size	204	204
Arithmetic mean	36.9441	31.2417
95% CI for the mean	36.0110 to 37.8772	30.0244 to 32.4589
Variance	45.6883	77.7506
Standard deviation	6.7593	8.8176
Standard error of the mean	0.4732	0.6174
Mean difference		-5.7025
Standard deviation of differences		3.5365
Standard error of mean difference		0.2476
95% CI of difference		-6.1907 to -5.2142
Test statistic t		-23.030
Observed t		-10.8988; -14.2187
Degrees of Freedom (DF)		203
Two-tailed probability		P < 0.0001
H_0 is rejected; There is a significant difference between AlbBCG and AlbNEPH method.		

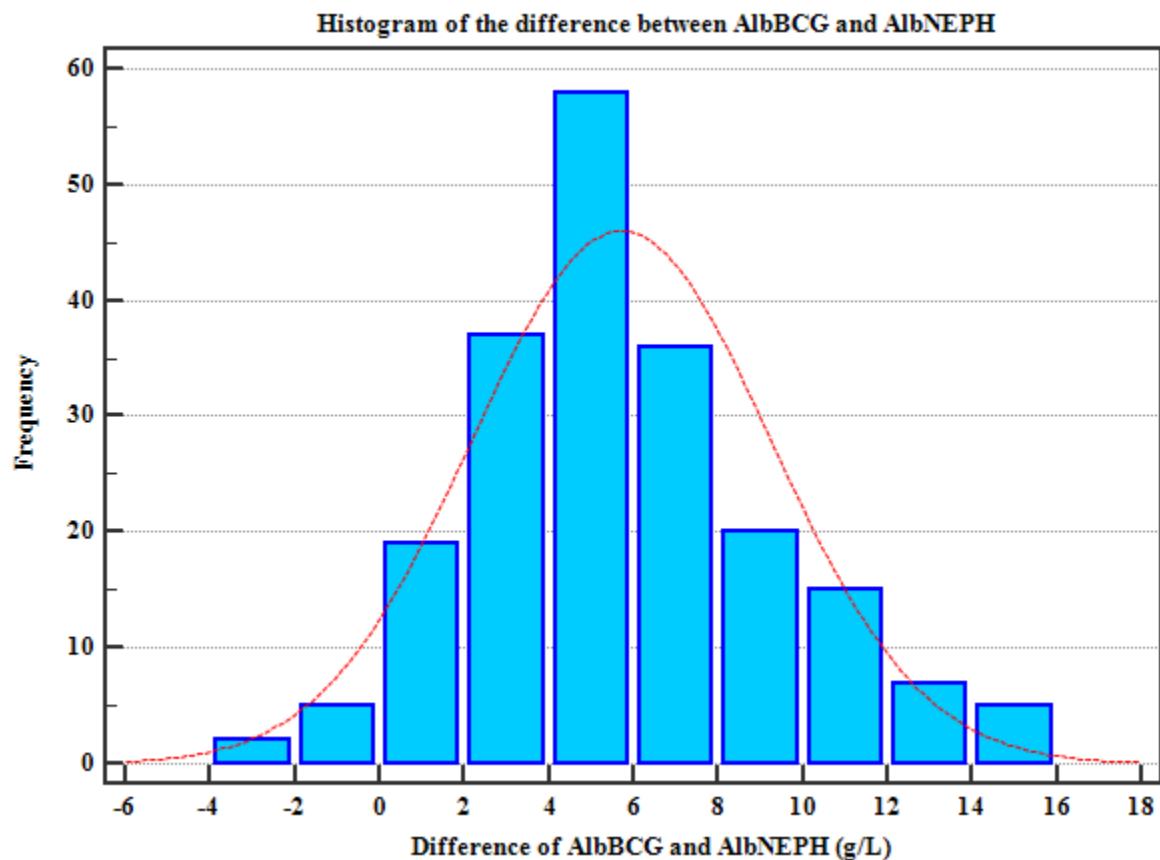
Appendix 2: Passing and Bablok regression: AlbBCG (y-variable) against AlbNEPH (x-variable)

Variable X	AlbNEPH_method
Variable Y	AlbBCG_method
Sample size	204
Lowest value	10.2000
Highest value	50.7000
Arithmetic mean	31.2417
Median	33.2000
Standard deviation	8.8176
Standard error of the mean	0.6174
Variable X	Variable Y
17.2000	51.4000
36.9441	37.7000
6.7593	0.4732
Regression Equation	
$y = 13.732195 + 0.746341 x$	
Systematic differences	
Intercept A	13.7322
95% CI	12.0537 to 15.2207
Proportional differences	
Slope B	0.7463
95% CI	0.7036 to 0.7919
Random differences	
Residual Standard Deviation (RSD)	2.0029
± 1.96 RSD Interval	-3.9257 to 3.9257
Linear model validity	
Cusum test for linearity	No significant deviation from linearity (P=0.99)
Spearman rank correlation coefficient	
Correlation coefficient	0.944
Significance level	P<0.0001
95% CI	0.927 to 0.957

Appendix 3: Passing and Bablok regression: AlbNEPH (y-variable) against AlbBCG (x-variable).

Variable X	AlbBCG_method
Variable Y	AlbNEPH_method
Sample size	204
Lowest value	17.2000
Highest value	51.4000
Arithmetic mean	36.9441
Median	37.7000
Standard deviation	6.7593
Standard error of the mean	0.4732
Regression Equation	$y = -18.399346 + 1.339869 x$
Systematic differences	
Intercept A	-18.3993
95% CI	-21.6328 to -15.2203
Proportional differences	
Slope B	1.3399
95% CI	1.2627 to 1.4213
Random differences	
Residual Standard Deviation (RSD)	2.0029
± 1.96 RSD Interval	-3.9257 to 3.9257
Linear model validity	
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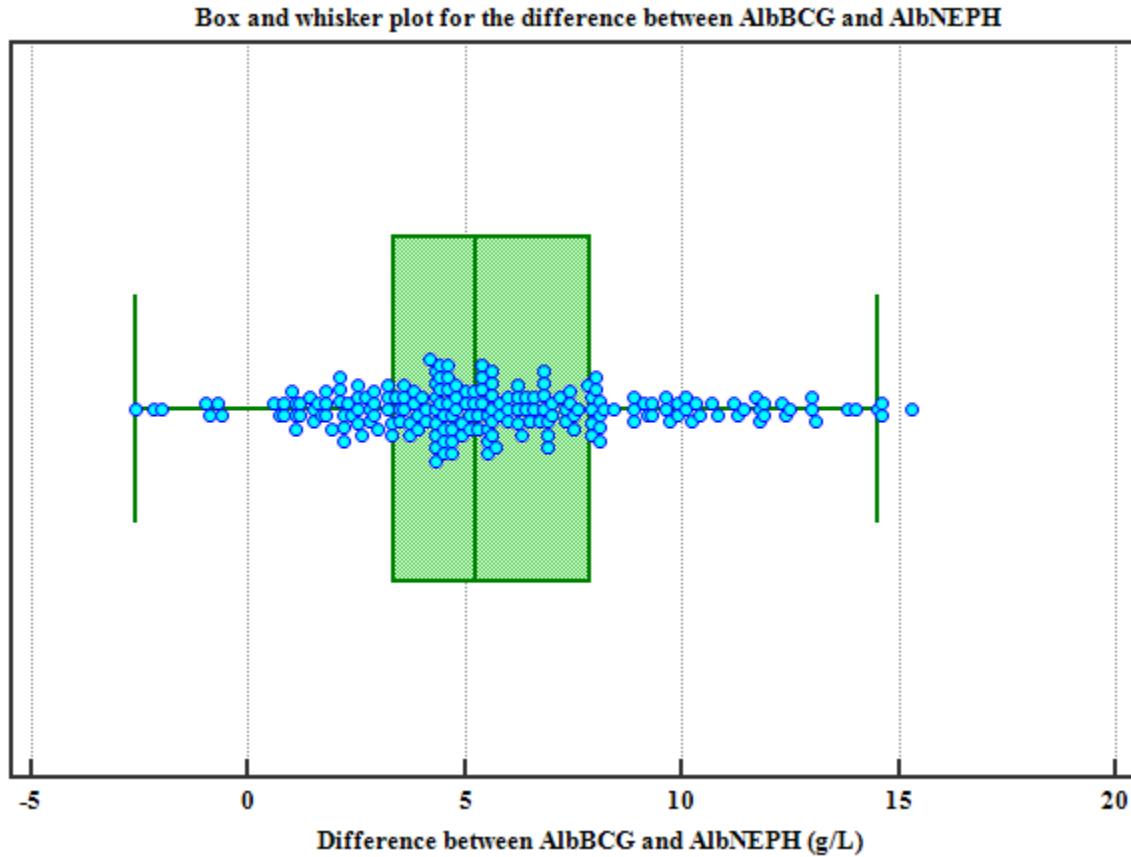
Appendix 4a: Histogram shows the distribution of the difference between AlbBCG and AlbNEPH



Appendix 4b: Summary statistics for the difference between AlbBCG and AlbNEPH.

Variable	Difference__AlbBCG_AlbNEPH_
Sample size	204
Lowest value	-2.6000
Highest value	15.3000
Arithmetic mean	5.7025
95% CI for the Arithmetic mean	5.2142 to 6.1907
Median	5.2500
95% CI for the median	4.7000 to 5.6000
Variance	12.5070
Standard deviation	3.5365
Relative standard deviation	0.6202 (62.02%)
Standard error of the mean	0.2476
Coefficient of Skewness	0.4694 (P=0.0072)
Coefficient of Kurtosis	0.08220 (P=0.6967)
Shapiro-Wilk test for Normal distribution	<p style="color: green;">W=0.9773</p> <p style="color: red;">reject Normality (P=0.0022)</p>
Percentiles	95% Confidence interval
2.5	-0.7800
5	0.8000
10	1.5900
25	3.3500
75	7.8500
90	10.8400
95	12.4300
97.5	13.8800

Appendix 4c: Box and whiskers plot shows the difference between AlbBCG and AlbNEPH.



Appendix 5: Dependent variable to independent variable correlation study.

<table border="1"> <thead> <tr> <th>Variable Y</th><th>Difference_AlbBCG_AlbNEPH_</th></tr> </thead> <tbody> <tr> <td>Variable X</td><td>Mean_of_AlbBCG_and_AlbNEPH</td></tr> <tr> <td>Sample size</td><td>204</td></tr> <tr> <td>Correlation coefficient r</td><td>-0.5922</td></tr> <tr> <td>Significance level</td><td>P<0.0001</td></tr> <tr> <td>95% Confidence interval for r</td><td>-0.6747 to -0.4951</td></tr> </tbody> </table> <p style="text-align: center;">(a)</p>	Variable Y	Difference_AlbBCG_AlbNEPH_	Variable X	Mean_of_AlbBCG_and_AlbNEPH	Sample size	204	Correlation coefficient r	-0.5922	Significance level	P<0.0001	95% Confidence interval for r	-0.6747 to -0.4951	<table border="1"> <thead> <tr> <th>Variable Y</th><th>Difference_AlbBCG_AlbNEPH_</th></tr> </thead> <tbody> <tr> <td>Variable X</td><td>Gender</td></tr> <tr> <td>Sample size</td><td>204</td></tr> <tr> <td>Correlation coefficient r</td><td>-0.02486</td></tr> <tr> <td>Significance level</td><td>P=0.7241</td></tr> <tr> <td>95% Confidence interval for r</td><td>-0.1617 to 0.1129</td></tr> </tbody> </table> <p style="text-align: center;">(b)</p>	Variable Y	Difference_AlbBCG_AlbNEPH_	Variable X	Gender	Sample size	204	Correlation coefficient r	-0.02486	Significance level	P=0.7241	95% Confidence interval for r	-0.1617 to 0.1129
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Appendix 7: Simple linear regression (one x-variable).

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Appendix 8: Simple linear regression (2 x-variable)

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Gender	-0.2922	0.5049	0.57	0.56	0.040	0.040	1.03																																																																																																																												
Source	DF	Sum of Squares	Mean Square																																																																																																																																
Regression	2	20.2630	10.1315																																																																																																																																
Residual	201	2518.6657	12.5307																																																																																																																																
Variable	Difference_AlbBCG_AlNeph_	Creatinine_concentration																																																																																																																																	
Creatinine_concentration	-0.07955																																																																																																																																		
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Mean_of_AlBCG_and_AlbNEPH	-0.2724	0.026 30 56	-10.3	<0.001	-0.58 99	0.58 80	1.0 05		Mean_of_AlBCG_and_AlbNEPH	-0.2769	0.026 24 51	-10.5	<0.001	-0.59 70	0.59 68	1.0 08											
Analysis of Variance																											
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(f)																											

Appendix 9: Multiple regression with the inclusion of all the variables.

Dependent Y	Difference__AlbBCG_AlbNEPH_					
Least squares multiple regression						
Method	Enter					
Sample size	204					
Coefficient of determination R ²	0.3689					
R ² -adjusted	0.3562					
Multiple correlation coefficient	0.6074					
Residual standard deviation	2.8375					
Regression Equation						
Independent variables	Coefficient	Std. Error	t	P	r _{partial}	r _{semipartial}
(Constant)	17.3236					
Age	-0.01894	0.01101	-1.720	0.0869	-0.1211	0.09688
Gender	-0.6640	0.4066	-1.633	0.1041	-0.1150	0.09195
Creatinine_concentration	-0.0009424	0.001288	-0.732	0.4653	-0.05179	0.04119
Mean_of_AlBcG_and_AlBNPH	-0.2759	0.02617	-10.544	<0.0001	-0.5987	0.5938
Analysis of Variance						
Source	DF	Sum of Squares	Mean Square			
Regression	4	936.6977	234.1744			
Residual	199	1602.2311	8.0514			
F-ratio		29.0849				
Significance level		P<0.0001				
Zero order and simple correlation coefficients						
Variable	Difference__AlbBCG_AlbNEPH_	Age	Gender	Creatinine_concentration		
Age	-0.09823					
Gender	-0.02486	-0.07835				
Creatinine_concentration	-0.07955	0.1223	-0.1894			
Mean_of_AlBcG_and_AlBNPH	-0.5922	0.004456	-0.08969	0.07223		
Residuals						
Shapiro-Wilk test for Normal distribution	W=0.9821 reject Normality (P=0.0106)					

Appendix 10: Multiple regression with the elimination of non-significant variable.

Dependent Y	Difference__AlbBCG_AlbNEPH_					
Least squares multiple regression						
Method	Backward					
Enter variable if P<	0.05					
Remove variable if P>	0.051					
Sample size	204					
Coefficient of determination R ²	0.3507					
R ² -adjusted	0.3475					
Multiple correlation coefficient	0.5922					
Residual standard deviation	2.8568					
Regression Equation						
Independent variables	Coefficient Std. Error t P r _{partial} r _{semipartial}					
(Constant)	15.0304					
Mean_of_AlbBCG_and_AlbNEPH	-0.2736	0.02619	-10.445	<0.0001	-0.5922	0.5922
Variables not included in the model						
Age						
Gender						
Creatinine_concentration						
Analysis of Variance						
Source	DF	Sum of Squares	Mean Square			
Regression	1	890.3950	890.3950			
Residual	202	1648.5338	8.1611			
F-ratio	109.1029					
Significance level	P<0.0001					
Zero order and simple correlation coefficients						
Variable	Difference__AlbBCG_AlbNEPH_	Age	Gender	Creatinine_concentration		
Age	-0.09823					
Gender	-0.02486	-0.07835				
Creatinine_concentration	-0.07955	0.1223	-0.1894			
Mean_of_AlbBCG_and_AlbNEPH	-0.5922	0.004456	-0.08969	0.07223		
Residuals						
Shapiro-Wilk test for Normal distribution	W=0.9808 reject Normality (P=0.0069)					

Appendix 11: Raw data

SERIAL NUMBER	GENDER	YEAR	AGE	CREATININE - ADVIA CHEMISTRY	ALBUMIN (BCG) - ADVIA CHEMISTRY	ALBUMIN (IMMUNOASSAY) - ATELICA NEPH
1	M	1954	66	70.3	41.8	41.0
2	M	1953	67	62.1	33.1	23.5
3	F	1975	45	43.2	36.6	33.2
4	M	1995	25	78.8	48.1	50.7
5	M	1955	65	60.1	46.5	47.5
6	M	1996	24	39.1	27.6	15.7
7	F	1949	71	46.5	33.0	22.7
8	M	1977	43	63.3	35.8	27.9
9	F	1970	50	101.0	25.6	12.6
10	F	1986	34	65.1	31.9	24.3
11	M	1967	53	54.3	37.6	35.5
12	F	2000	20	42.0	30.8	22.7
13	F	1968	52	35.8	26.6	18.6
14	F	1982	38	37.0	32.5	22.6
15	F	1964	56	282.3	29.9	23.9
16	M	1946	74	76.3	41.4	42.1
17	M	1971	49	100.4	43.9	44.8
18	M	1936	84	111.3	30.9	25.4
19	F	1938	82	133.3	17.2	16.1
20	F	1939	81	39.6	30.6	24.8
21	F	1968	52	81.9	42.2	40.7
22	M	1938	82	87.8	40.5	33.6
23	M	1948	72	62.5	41.1	36.1
24	M	1965	55	99.1	42.9	41.7
25	M	1970	50	112.3	44.4	39.5
26	M	1946	74	69.6	45.0	40.9
27	M	1946	74	152.1	29.8	24.2
28	F	1936	84	61.2	43.2	38.8
29	M	1954	66	64.3	44.5	43.4
30	F	1975	45	53.4	44.6	41.1
31	F	1986	34	99.3	30.4	21.3
32	F	1936	84	107.7	23.0	14.1
33	F	1975	45	74.2	43.3	42.1
34	F	1964	56	50.6	44.8	42.7
35	F	1941	79	67.7	37.7	34.8
36	M	1992	28	33.3	35.9	29.3
37	F	1964	56	538.9	43.4	39.1
38	M	1956	64	90.0	45.0	42.3
39	M	1984	36	68.0	48.0	42.3
40	M	1949	71	85.5	41.9	39.1

41	F	1948	72	64.2	46.3	41.9
42	M	1968	52	92.0	42.1	40.5
43	F	1978	42	72.1	43.2	34.3
44	M	1948	72	68.5	37.7	33.4
45	M	1974	46	49.9	28.3	23.1
46	M	1986	34	106.4	37.9	35.3
47	M	1968	52	89.6	24.0	21.9
48	F	1940	80	65.6	44.3	39.2
49	F	1931	89	45.0	42.9	35.5
50	M	1970	50	48.3	41.3	34.0
51	M	1946	74	72.1	24.1	19.9
52	M	1961	59	49.3	29.1	14.6
53	F	1955	65	145.2	27.8	25.3
54	F	1965	55	54.0	22.7	18.4
55	F	1936	84	36.2	20.9	10.2
56	M	1996	24	44.1	28.4	15.4
57	M	1997	23	59.7	23.9	15.5
58	M	1939	81	119.2	27.6	22.9
59	F	1949	71	47.5	33.4	21.6
60	M	1992	28	31.4	36.0	30.4
61	M	1968	52	222.9	36.2	35.1
62	F	1942	78	55.3	31.4	25.8
63	F	1970	50	105.8	26.5	12.7
64	M	1945	75	107.6	38.8	35.5
65	M	1943	77	92.8	37.9	33.3
66	F	1976	44	65.1	32.1	29.7
67	M	1948	72	108.7	36.6	31.0
68	M	1977	43	62.6	34.1	24.4
69	F	2000	20	48.8	31.9	21.8
70	F	1986	34	103.2	30.5	21.2
71	M	1949	71	48.0	28.0	15.5
72	F	1982	38	42.6	36.4	24.1
73	F	1970	50	51.0	37.4	32.7
74	M	1936	84	115.5	28.9	22.1
75	M	1936	84	411.4	35.8	24.0
76	F	1958	62	59.6	43.4	39.8
77	F	1988	32	63.9	44.0	41.5
78	F	1946	74	73.4	41.8	34.0
79	M	2003	17	65.1	37.8	30.8
80	F	1960	60	52.7	47.3	43.4
81	F	1981	39	590.3	39.8	38.0
82	M	1942	78	71.9	42.3	33.4
83	M	1948	72	595.9	36.4	30.2
84	M	1957	63	100.4	39.9	36.6
85	F	1958	62	49.6	41.9	39.4

86	F	1951	69	49.7	51.4	47.1
87	F	1972	48	54.0	37.6	36.8
88	M	1956	64	81.1	39.7	33.9
89	F	1965	55	18.6	25.1	24.5
90	M	1949	71	136.9	37.5	26.1
91	F	1986	34	100.0	29.2	20.0
92	F	1938	82	131.5	25.6	27.6
93	F	1972	48	47.7	35.3	32.5
94	F	2019	1	18.2	30.2	24.7
95	M	1936	84	392.9	35.8	24.6
96	F	1955	65	100.4	28.7	24.9
97	M	1996	24	49.0	31.8	17.2
98	M	1939	81	124.6	24.8	18.6
99	F	1965	55	52.8	19.6	14.2
100	M	1961	59	44.3	28.3	13.0
101	F	1944	76	50.5	33.8	21.9
102	F	1982	38	42.4	32.8	21.5
103	F	1952	68	64.2	38.7	35.5
104	F	1963	57	185.2	33.9	27.7
105	M	1950	70	549.2	43.5	41.2
106	M	1990	30	1018.4	40.7	39.7
107	M	1948	72	99.5	35.2	30.3
108	M	1953	67	318.8	41.0	36.0
109	M	1953	67	324.4	41.9	36.5
110	F	1938	82	132.7	27.7	29.9
111	M	2001	19	73.3	47.9	46.4
112	M	1964	56	90.9	46.3	43.4
113	F	1976	44	64.3	38.9	37.1
114	M	1946	74	915.3	38.0	29.8
115	M	1944	76	68.1	41.6	36.0
116	M	1950	70	86.8	42.2	37.7
117	F	1943	77	70.8	36.7	30.5
118	M	1952	68	793.5	36.9	34.4
119	M	1948	72	83.8	34.1	29.3
120	F	1963	57	70.0	40.1	38.3
121	M	1950	70	242.8	39.0	35.4
122	F	1969	51	97.9	44.2	41.0
123	M	1958	62	658.1	40.0	31.9
124	M	1961	59	71.4	33.7	28.4
125	M	1946	74	80.9	45.7	41.1
126	F	1964	56	70.6	42.8	40.6
127	M	1948	72	77.9	35.7	30.4
128	F	1962	58	63.9	42.2	40.0
129	F	1965	55	45.5	41.2	36.8
130	F	1941	79	56.1	37.2	29.7

131	M	1942	78	162.0	34.2	30.5
132	M	1949	71	730.9	44.7	41.5
133	F	1971	49	55.8	44.4	40.1
134	F	1983	37	87.9	41.3	36.8
135	F	1948	72	45.9	37.2	29.3
136	M	1965	55	66.3	45.8	41.5
137	F	1972	48	44.5	44.3	42.9
138	M	1958	62	88.0	46.6	40.2
139	F	1955	65	57.3	42.6	39.7
140	M	1994	26	198.1	40.0	33.2
141	M	1946	74	928.1	39.5	35.8
142	F	1940	80	454.4	30.8	24.1
143	F	1948	72	92.0	39.7	35.8
144	F	1961	59	379.5	40.9	37.4
145	F	1941	79	72.3	42.1	40.2
146	M	1962	58	89.0	48.6	41.6
147	M	1947	73	106.9	45.3	42.3
148	F	1946	74	61.3	45.9	39.9
149	F	1966	54	65.2	44.5	43.8
150	F	1962	58	51.2	42.8	38.7
151	F	2011	9	29.2	43.2	43.8
152	M	1939	81	60.3	42.3	34.3
153	F	1969	51	68.6	43.4	38.3
154	M	1989	31	45.9	32.2	22.9
155	M	1947	73	170.5	33.4	26.2
156	F	1965	55	50.2	26.8	22.0
157	F	1948	72	56.3	41.2	34.4
158	M	1961	59	43.1	28.8	14.8
159	F	1936	84	26.0	22.2	12.0
160	M	1996	24	43.4	31.3	18.2
161	F	1955	65	191.7	25.0	17.1
162	F	1958	62	301.5	27.6	15.2
163	F	1970	50	88.8	28.7	14.1
164	M	1943	77	88.7	37.4	33.4
165	M	1952	68	81.0	40.6	36.3
166	M	1942	78	69.4	28.7	21.3
167	M	1977	43	67.6	36.8	27.2
168	F	1942	78	95.8	31.1	26.8
169	M	1944	76	72.0	34.2	28.8
170	F	1956	64	48.3	40.7	33.8
171	F	1986	34	107.3	31.6	20.8
172	F	1982	38	44.6	32.5	22.1
173	F	1957	63	61.3	39.2	33.6
174	M	1959	61	57.7	36.2	24.5
175	F	1946	74	62.0	39.2	33.7

176	M	1957	63	89.4	43.2	35.7
177	M	1998	22	52.1	40.1	33.6
178	F	2010	10	131.6	38.4	30.5
179	F	1953	67	70.6	41.4	36.8
180	M	1944	76	107.6	41.3	35.0
181	F	1944	76	56.6	33.4	25.3
182	F	1944	76	44.9	36.7	30.1
183	M	1958	62	73.8	39.4	34.9
184	M	1949	71	62.2	44.1	39.3
185	M	1956	64	41.4	40.7	33.8
186	M	1978	42	62.2	36.9	28.8
187	F	1971	49	68.1	37.7	32.5
188	F	1945	75	69.3	40.4	36.0
189	M	1932	88	115.4	29.4	22.1
190	M	1963	57	54.9	27.0	22.4
191	M	1982	38	79.2	44.7	40.2
192	F	1964	56	60.7	44.1	38.6
193	F	1954	66	72.5	36.7	32.0
194	F	1958	62	49.5	39.2	32.4
195	F	1961	59	64.7	44.9	40.2
196	M	1961	59	72.2	36.1	29.7
197	M	1948	72	91.3	36.2	30.2
198	M	1953	67	261.9	31.1	21.2
199	M	1946	74	87.4	49.4	47.7
200	F	1997	23	39.9	40.5	30.4
201	F	1975	45	43.8	31.7	28.1
202	M	1954	66	70.3	32.1	29.9
203	M	1961	59	84.6	38.8	35.0
204	M	1978	42	70.4	39.3	33.9