

Appendix 3. Tables with z-scores

		Part 01	Part 02	Part 03	Part 04	Part 07	Part 08	Part 09	Part 10	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20
Matrix	Determinand																		
Fish	PFBA																		
Fish	PFPeA																		
Fish	PFHxA																		
Fish	PFHpA																		
Fish	PFOA																		
Fish	PFNA		0.23	80.06	3.57					2.64	-3.81	10.64	-2.86	1.13	10.64			38.28	
Fish	PFDA	0.22	0.16	7.26	1.39	6.68			0.22	-1.66	-5.34	-1.10	-0.07	-0.28	3.15			8.00	6.09
Fish	PFUdA		-0.16	17.09	1.93				3.50	-2.83	-5.48		-0.16	-0.37	2.45			1.67	0.89
Fish	PFDoA		-0.98	110.46	0.77	40.26				-0.17				1.65	9.55			64.39	
Fish	PFTrDA																		
Fish	PFTeDA																		
Fish	PFHxDA																		
Fish	PFODA																		
Fish	PFBS																		
Fish	PFHxS																		
Fish	PFOS	1.31	4.06	-5.08	2.39	-0.78	1.34	-4.30	0.56	1.45	-5.79	-1.65	1.09	0.34	0.32	-3.23		-1.19	2.76
Fish	PFDS																		
Fish	PFOSA				0.82	11.19			0.82					-2.92				8.34	
Water	PFBA		-3.10								2.79	5.09	-1.44				-0.71		
Water	PFPeA		4.15						2.16	-2.35	13.77	-1.53	-0.33						
Water	PFHxA	-0.08	-0.78		-7.91	2.64			1.76	-2.54	6.60	0.10	1.32	0.32	2.20		1.44	-0.96	-2.63
Water	PFHpA	0.27	2.19	-3.33					1.61	0.41	8.54	-1.39	3.62	0.67	0.72		-1.41	-3.19	
Water	PFOA	-2.53	0.02	-0.08	-7.95	0.39	0.25		2.24	3.61	5.95	-1.43	-0.08	0.02	0.39	16.61	-0.01	-1.42	9.66
Water	PFNA		-2.79	-4.11						4.19	1.34	1.50	-1.00	-0.38	1.34		0.55		
Water	PFDA																		
Water	PFUdA																		
Water	PFDoA																		
Water	PFTrDA																		
Water	PFTeDA																		
Water	PFHxDA																		
Water	PFODA																		
Water	PFBS	-0.05	3.74			3.18			5.96	-3.19	-0.24	-0.70	0.78	-0.63			1.97		20.74
Water	PFHxS	-0.74	2.23	-1.57	-7.97	0.66			1.30	-2.66	5.78	-0.81	-0.07	0.12	1.27	1.30	1.64	-4.12	
Water	PFOS	-1.60	-0.04	-0.17	-7.99	-0.32	-1.06		-0.96	1.60	11.17	-2.82	-1.40	2.07	2.50	1.70	0.54	-2.29	2.55
Water	PFDS																		
Water	PFOSA																		

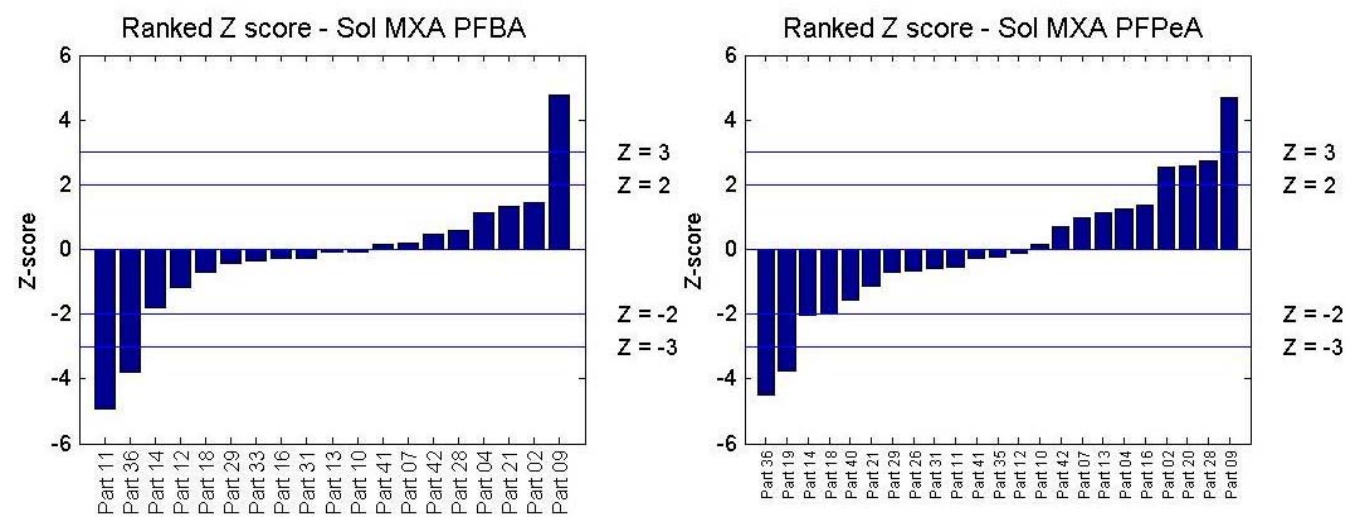
Matrix	Determinand	Part 01	Part 02	Part 03	Part 04	Part 07	Part 08	Part 09	Part 10	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20
Sludge	PFBA																		
Sludge	PFPeA																		
Sludge	PFHxA	-4.00			-2.90					514.06				-1.62					
Sludge	PFHpA																		
Sludge	PFOA	-4.74	0.68	-0.03	-0.58	-1.03	-1.70	-0.06	1.72	0.98	-1.09	-1.61	-0.14	-1.38	4.31	-6.44	0.64	-5.59	
Sludge	PFNA		-1.47		-1.47						2.36		11.58	-2.78	67.07		-0.46		
Sludge	PFDA	-5.32	0.95	0.05	-0.84	0.05			2.44	-3.24	0.11		0.95	-2.60	9.60		0.07		
Sludge	PFUdA																		
Sludge	PFDoA		-1.20	-5.79	0.45	2.46							-0.36				-4.56		
Sludge	PFTTrDA																		
Sludge	PFTeDA																		
Sludge	PFHxDA																		
Sludge	PFODA																		
Sludge	PFBS																		
Sludge	PFHxS																		
Sludge	PFOS	-3.49	0.83	0.17	-1.46	-3.34	-0.55	-7.07	3.64	-0.75	1.49	-4.32	0.59	-0.81	-2.45	-5.67	0.24	3.19	-0.48
Sludge	PFDS				-4.18	-3.74				-1.72				0.76				1.16	
Sludge	PFOSA																		
Sol MXA	PFBA		1.46		1.12	0.19		4.78	-0.08	-4.92	-1.15	-0.09	-1.80		-0.28		-0.71		
Sol MXA	PFPeA		2.54		1.24	0.97		4.68	0.16	-0.53	-0.11	1.13	-2.04		1.35		-2.00	-3.75	2.60
Sol MXA	PFHxA	-0.70	0.97		1.20	0.59		4.12	-0.02	-1.66	0.18	0.50	-1.57	-0.25	0.00	1.81	-1.48	0.21	1.40
Sol MXA	PFHpA	0.20	3.09	0.24	0.56	0.24		5.09	-0.75	0.32	0.89	-0.58	-2.26	-0.06	0.83		-0.63	-0.50	1.22
Sol MXA	PFOA	-0.24	1.07	4.70	0.51	-0.27	1.21	2.41	-0.15	1.67	-1.81	-1.02	-2.48	-0.15	0.00	1.61	-1.18	0.53	0.40
Sol MXA	PFNA	-0.20	0.95	3.36	0.82	0.03			0.03	-0.17	-1.79	-0.08	-1.59	-0.36	0.21	0.42	-0.12	-0.78	0.23
Sol MXA	PFDA	0.25	1.55	2.67	1.07	1.34		9.67	0.01	-1.55	-2.03	3.52	-0.92	-0.07	-0.26	-1.06	-2.45	0.73	0.01
Sol MXA	PFUdA		1.20	-0.88	1.48	0.30			-0.09	-0.05	0.04	5.42	-0.41	-0.17	-0.57	1.09	-0.33	10.31	0.30
Sol MXA	PFDoA		2.36	-0.42	1.57	1.17			-0.42	0.01	-0.55	5.07	-1.96	-0.26	-0.97	4.35	0.29		-0.02
Sol MXA	PFTTrDA			-0.22	1.93					-1.07	-4.45			1.71	0.38	67.26	0.44		
Sol MXA	PFTeDA				2.89	3.32				-0.80	-3.76	10.38		1.02					
Sol MXA	PFHxDA																		
Sol MXA	PFODA																		
Sol MXA	PFBS	-0.37	2.48		2.48	-0.13		-1.64	1.17	-2.48	-2.31	1.23	-1.18	-0.29	0.30	2.70	-1.36	-4.12	8.80
Sol MXA	PFHxS	-0.16	2.95	-0.13	1.55	0.71		0.54	0.15	-1.39	-2.65	-1.29	-1.75	-0.32	0.24	10.24	0.49	-4.23	
Sol MXA	PFOS	1.41	1.27	3.06	2.10	-1.77	0.73	-0.80	-0.11	0.03	-0.99	-0.42	-0.74	-0.24	0.99	2.65	-2.49	0.24	2.23
Sol MXA	PFDS		6.44		1.53	-0.20				-0.38		4.86		0.02	0.36			10.65	

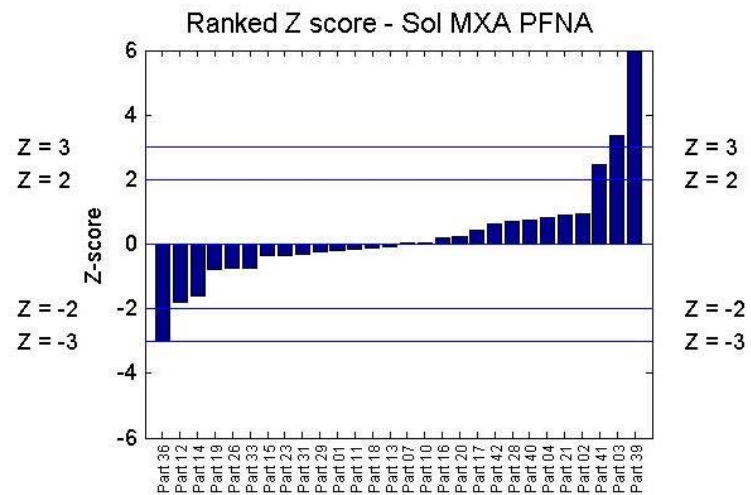
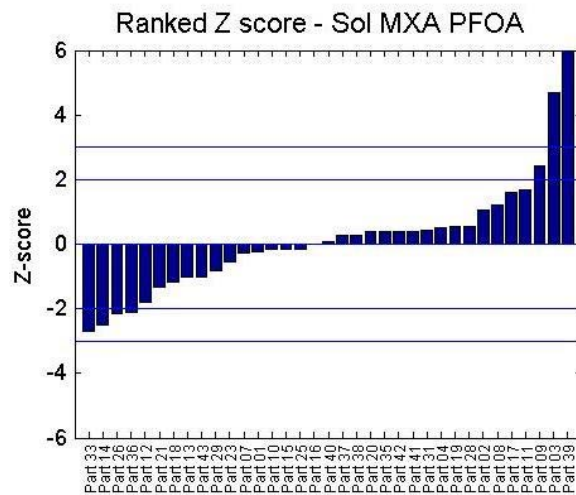
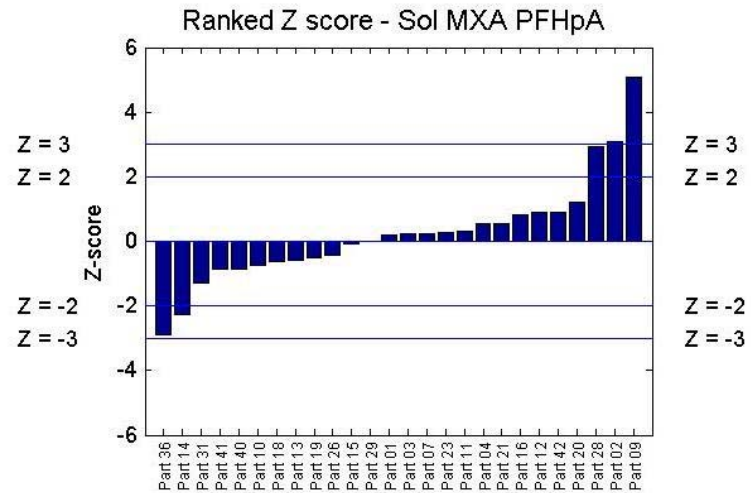
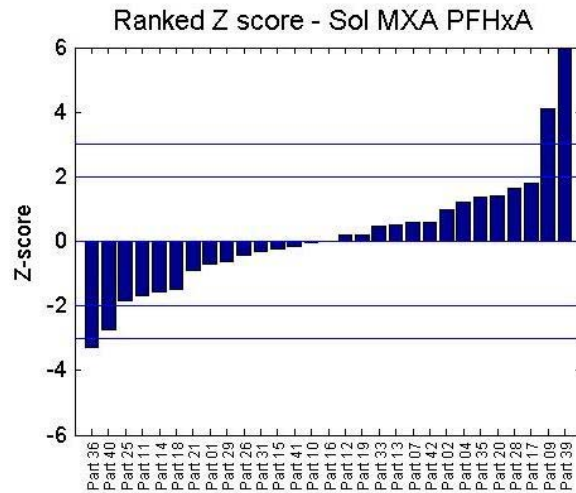
Matrix	Determinand	Part 21	Part 23	Part 25	Part 26	Part 28	Part 29	Part 31	Part 33	Part 34	Part 35	Part 36	Part 37	Part 38	Part 39	Part 40	Part 41	Part 42	Part 43
Sludge	PFBA																		
Sludge	PFPeA																		
Sludge	PFHxA	-0.35			1.35	37.82	3.48										1.18	3.05	
Sludge	PFHpA																		
Sludge	PFOA	-1.40	-0.51		1.72	2.24	2.51										8.69	4.68	20.26
Sludge	PFNA	0.16	0.16			1.48											65.44	1.79	
Sludge	PFDA	-1.74	-1.14		1.25	0.32											26.00	1.84	
Sludge	PFUdA																		
Sludge	PFDoA	0.45	0.04			-0.36											5.27	8.09	
Sludge	PFTTrDA																		
Sludge	PFTeDA																		
Sludge	PFHxDA																		
Sludge	PFODA																		
Sludge	PFBS																		
Sludge	PFHxS																		
Sludge	PFOS	1.35	-0.21		4.71	-7.89	5.49				5.60						-1.80	5.42	2.03
Sludge	PFDS		8.94				13.02										0.86		
Sludge	PFOSA																		
Sol MXA	PFBA	1.32				0.57	-0.42	-0.28	-0.37			-3.78					0.16	0.45	
Sol MXA	PFPeA	-1.14			-0.66	2.73	-0.71	-0.58			-0.22	-4.48				-1.55	-0.28	0.70	
Sol MXA	PFHxA	-0.88		-1.83	-0.43	1.65	-0.61	-0.33	0.48		1.38	-3.29			39.55	-2.73	-0.17	0.59	
Sol MXA	PFHpA	0.56	0.27		-0.42	2.93	0.00	-1.27				-2.88				-0.84	-0.85	0.89	
Sol MXA	PFOA	-1.31	-0.55	-0.15	-2.14	0.55	-0.84	0.42	-2.68		0.40	-2.11	0.29	0.29	37.36	0.07	0.41	0.40	-1.00
Sol MXA	PFNA	0.91	-0.34		-0.75	0.72	-0.24	-0.32	-0.74			-3.02			12.74	0.73	2.48	0.62	
Sol MXA	PFDA	0.28	0.01	0.03	-0.26	0.33	0.55	-0.82	-0.22			-6.19			60.68	0.46	-0.87	0.28	
Sol MXA	PFUdA	-0.09	0.38			-0.92	0.13	-0.49				-1.63			88.41	1.07	-5.09	0.30	
Sol MXA	PFDoA	0.78	0.50			-3.04	0.11	-1.25				-5.46			105.20	0.12	-4.55	0.38	
Sol MXA	PFTTrDA											-1.72					-5.21	1.07	
Sol MXA	PFTeDA						0.88					-3.01					-2.66	0.72	
Sol MXA	PFHxDA																		
Sol MXA	PFODA																		
Sol MXA	PFBS	0.63			-0.13	1.54	-1.13	-0.48	1.13		1.72	-3.79					-0.66	0.52	
Sol MXA	PFHxS	1.69	-1.30		-0.69	0.66	0.00	0.04	0.73			-4.72				-1.23	3.51	0.99	
Sol MXA	PFOS	1.47	-0.80	-4.43	-0.80	-0.34	-0.53	-1.09	-2.20		-1.91	-1.94	4.17	-0.25	16.60	-0.60	2.69	0.58	1.83
Sol MXA	PFDS		0.15				-0.08					-6.66					-1.40		

		Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20	Part 21	Part 22
Matrix	Determinand	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20	Part 21	Part 22
Plasma A	PFBA																						
Plasma A	PFPeA																						
Plasma A	PFHxA																						
Plasma A	PFHpA	-0.79	0.65	2.09	5.21		6.25			43.91	-0.50		-0.21			0.36	0.36	0.08		1.52		-1.08	-1.08
Plasma A	PFOA	-0.81	0.19	1.16	0.65	-0.19	1.97	0.73	1.43	-0.12	5.39	0.43	-1.00	0.24	2.77	-0.54	-1.48	-1.45		0.73	-2.34	-1.56	-0.19
Plasma A	PFNA	-2.50	0.72	0.29	3.51		1.16	1.77		-2.07	0.03	1.86	-0.67	-1.08	3.34	0.81	-2.59	-3.29		0.99		-2.59	-0.06
Plasma A	PFDA		-0.41	-1.93	4.47		2.52			-2.69	-2.44		-1.17	-0.01	2.11	0.60	-1.17	1.61		1.36		0.09	0.34
Plasma A	PFUdA		-1.06		8.27	168.93	0.50				3.80		-2.80	-0.52		0.33				1.37			
Plasma A	PFDoA																						
Plasma A	PFTTrDA																						
Plasma A	PFTeDA																						
Plasma A	PFHxDA																						
Plasma A	PFODA																						
Plasma A	PFBS																						
Plasma A	PFHxS	2.90	-2.27	0.62	0.53	-1.48	0.60	-4.48	1.55	-3.02	3.65	0.85	-0.83	-0.46	-0.78	0.43	-1.13	-0.20		1.11		-0.45	0.39
Plasma A	PFOS	-0.98	2.59	1.09	0.57	-3.57	2.29	2.05	1.16	1.61	0.71	2.14	-3.30	-2.62	0.34	-2.92	-4.11	-4.51		1.81	-3.64	1.66	-1.84
Plasma A	PFDS																						
Plasma B	PFBA																						
Plasma B	PFPeA																						
Plasma B	PFHxA																						
Plasma B	PFHpA	-0.52	-2.01	1.58	2.74		7.08			27.91	2.47		-0.52			0.68	-0.22	-0.22		1.28		-0.82	-1.12
Plasma B	PFOA	-1.02	-1.76	0.69	-0.34	0.43	1.75	1.19	0.96	0.72	3.93	0.46	-0.89	-0.51	1.75	-0.68	-2.55	-1.91		0.64		-1.49	0.17
Plasma B	PFNA	-2.51	-1.14	0.23	1.51	1.44	1.08	1.01		-0.02	2.29	0.58	-0.62	-1.59	3.15	1.18	-1.74	-2.68		0.58		-1.82	-1.14
Plasma B	PFDA		-0.89	-2.55	0.72		1.71			-3.03	2.66		-1.13	-1.11	1.47	0.53	-1.37	1.00		1.00		-0.42	0.29
Plasma B	PFUdA		1.95		0.43	167.80	0.26				-0.04		-3.02	-1.47	1.95	-0.04				0.29			
Plasma B	PFDoA																						
Plasma B	PFTTrDA																						
Plasma B	PFTeDA																						
Plasma B	PFHxDA																						
Plasma B	PFODA																						
Plasma B	PFBS																						
Plasma B	PFHxS	3.29	-2.19	0.54	-0.59	-0.65	1.01	-4.47	1.01	-3.03	5.52	0.61	-0.22	-0.35	-1.12	1.28	-0.55	-0.55		1.35		-0.52	0.78
Plasma B	PFOS	-1.23	0.05	0.27	0.52	-2.71	2.21	1.81	1.16	1.98	1.31	1.16	-3.30	-2.84	0.64	-2.76	-4.05	-4.19		1.90		2.28	-1.29
Plasma B	PFDS																						

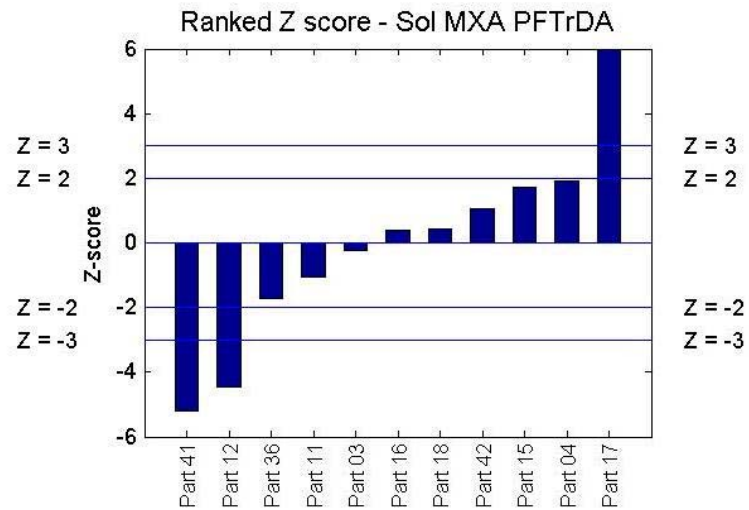
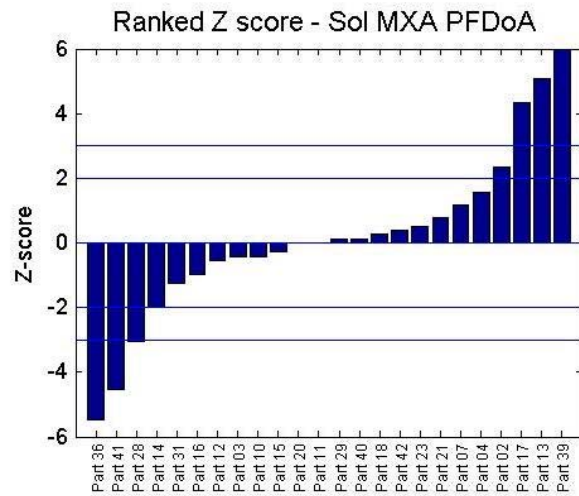
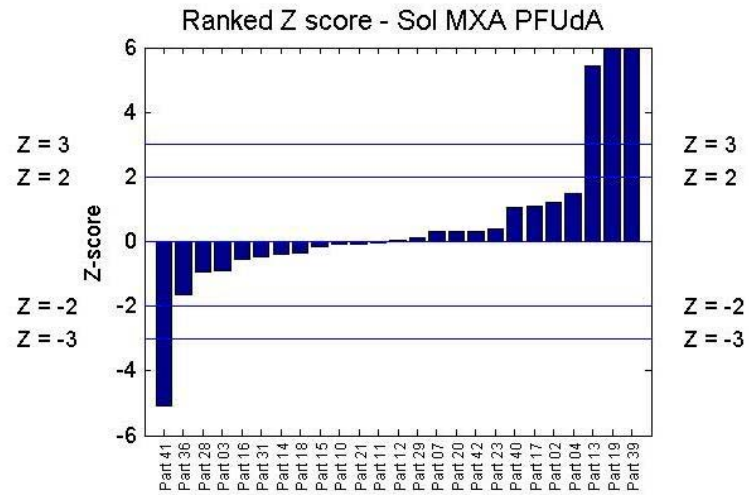
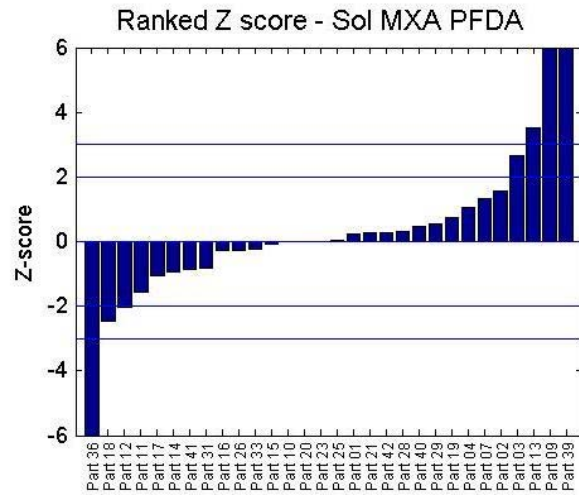
Matrix	Determinand	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	Part 9	Part 10	Part 11	Part 12	Part 13	Part 14	Part 15	Part 16	Part 17	Part 18	Part 19	Part 20	Part 21	Part 22
Sol MX3	PFBA		-1.37	0.47		-1.59	0.21	-2.59	0.47	-0.33	2.02	-0.04		0.52		0.00	-2.20	-2.41		-3.60		0.65	0.43
Sol MX3	PFPeA		-1.52	0.12	0.62	-0.84	2.12	-3.84		-0.02	2.94	-1.12		0.51		-0.26	-4.17	-4.29				0.26	0.60
Sol MX3	PFHxA		-0.62	0.04	1.24	-0.68	0.26	-1.83	1.32	0.60	2.59	-0.73	-2.01	1.55		3.84	-3.20	-3.60		-1.54		0.87	0.65
Sol MX3	PFHpA	-0.52	-1.19	-0.20	0.79	-1.65	-0.68	-1.26	0.76	0.28	3.66	-1.66	0.12	2.56	1.09	1.47	-3.89	-3.76		-0.63		0.84	1.57
Sol MX3	PFOA	-1.35	-1.19	0.39	-0.23	-1.16	2.05	9.36	1.44	-0.32	1.38	0.24	0.14	1.49	-0.78	-0.37	-1.38	-1.41		-1.14	1.40	0.90	0.55
Sol MX3	PFNA	1.07	-0.93	2.53	1.50	-2.16	0.76	-1.25	0.55	0.32	2.11	-0.75	-0.65	1.25	0.34	1.79	-2.70	-2.91		-1.07		-0.16	-1.01
Sol MX3	PFDA	2.15	-0.28	-0.48	0.36	-0.28	0.67	-6.17	0.33	-0.82	1.34	-1.16	0.06	0.80	-1.09	0.91	-3.22	-3.25		-1.15		0.12	0.46
Sol MX3	PFuDA	-0.59	0.18	0.44	4.69	-1.51	0.98	-0.85		-1.10	2.19	-1.40	1.07	1.78	1.16	1.21	-3.26	-2.71		-1.04		0.15	0.11
Sol MX3	PFDoA	0.20	-1.38	-0.14	7.90	0.54	-0.26	-5.36		1.04	4.24	-1.75	0.47	1.41	0.87	1.86	-2.74	-2.53		-2.77		1.78	0.29
Sol MX3	PFTTrDA	-0.93		-0.03	10.03			6.14		0.38			1.85	0.39			-0.37	-0.60				0.79	-0.85
Sol MX3	PFTeDA			-0.95	9.70	2.09		6.33		0.04			3.61	-0.46		1.31	-1.08	-0.52				0.29	-1.26
Sol MX3	PFHxDA																						
Sol MX3	PFODA																						
Sol MX3	PFBS		0.20	1.57	0.82	-1.21	0.70	-4.60	0.58		3.02	-1.79		1.51		-0.51	-2.84	-3.07				0.53	-0.05
Sol MX3	PFHxS	-0.36	-0.87	0.38	-0.65	-1.49	0.38	-3.72	0.61	-1.52	3.23	-1.09	0.53	0.36	0.23	0.30	-1.77	-1.94		0.68		0.68	0.76
Sol MX3	PFOS	-3.52	-0.23	0.13	-0.61	-3.19	0.73	7.64	-1.21	0.56	2.29	-1.06	0.28	1.84	2.26	-0.76	-2.22	-2.54		0.38	1.26	0.17	0.88
Sol MX3	PFDS			2.67	6.52	-2.09		-6.31			5.44		0.97	0.72		-1.14	-2.41	-2.69					0.58

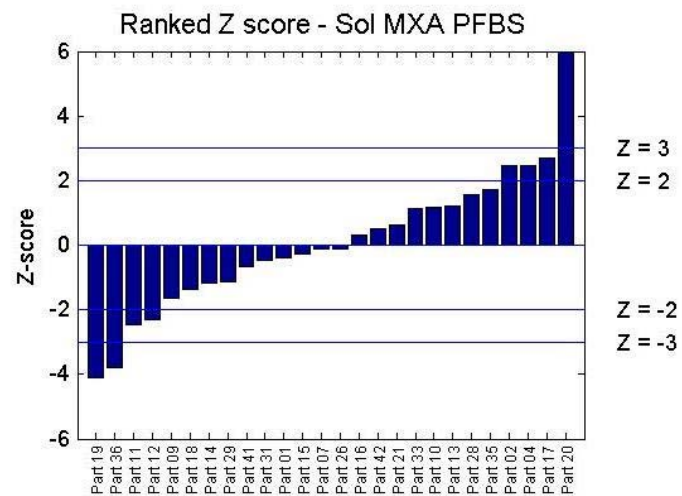
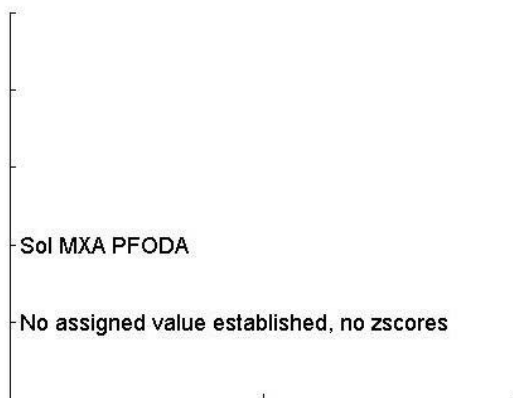
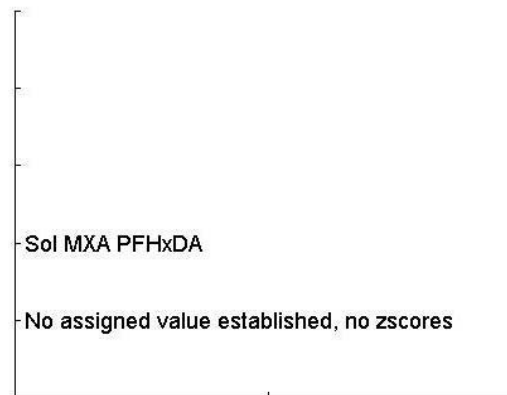
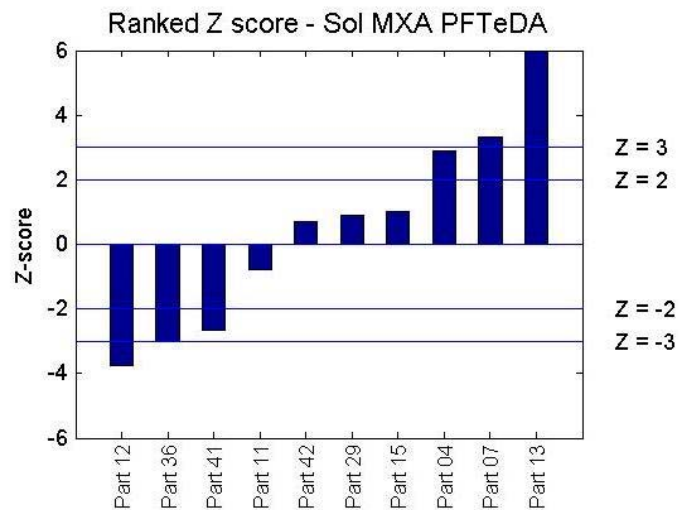
Appendix 4. Z-score plots for all compounds

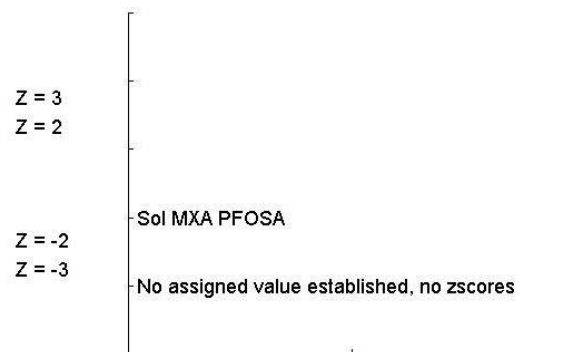
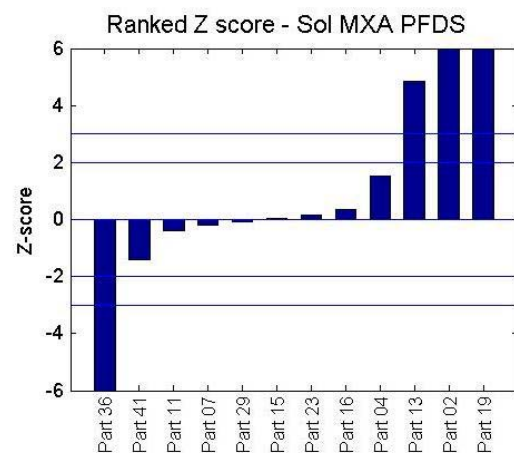
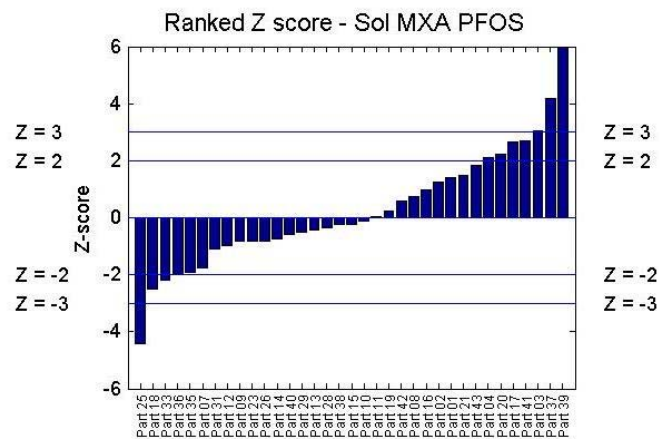
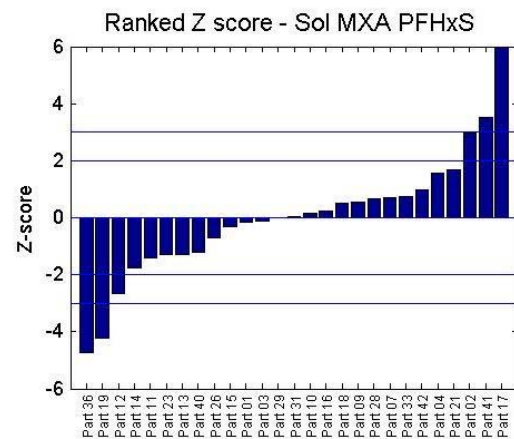


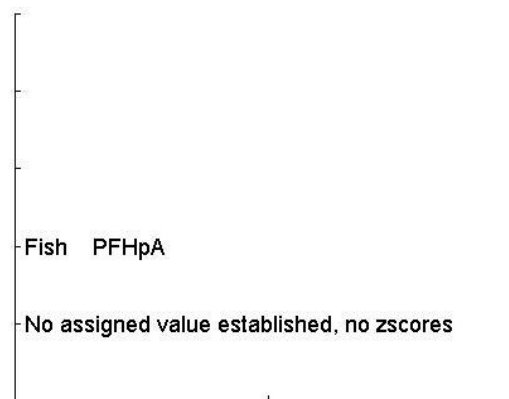
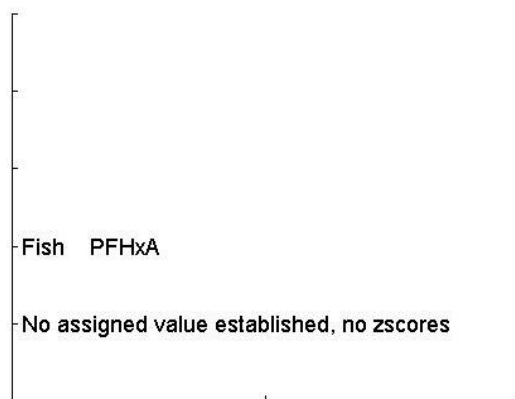
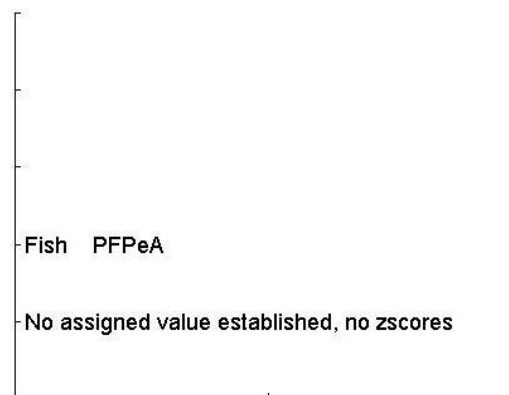
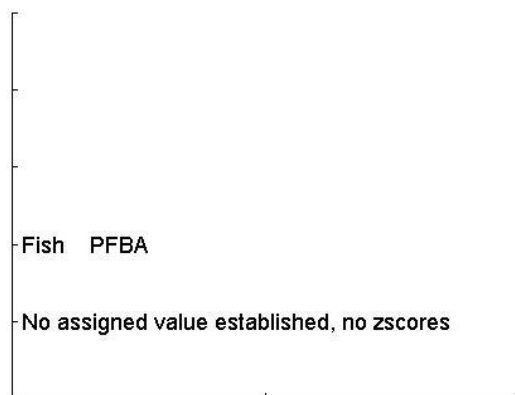


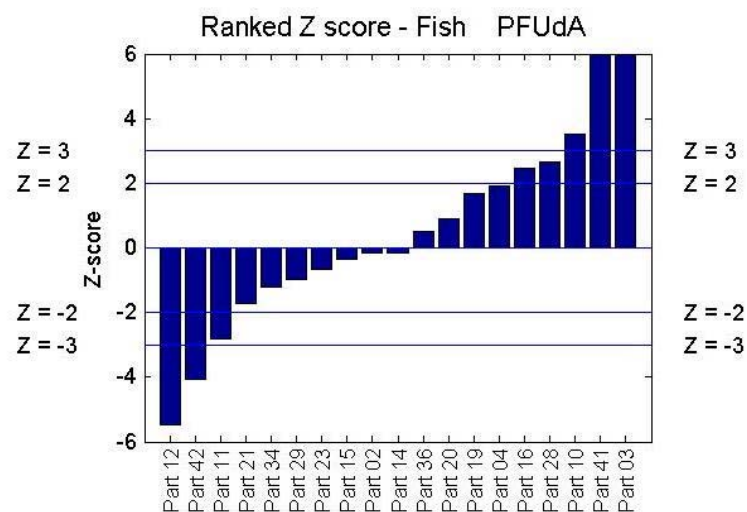
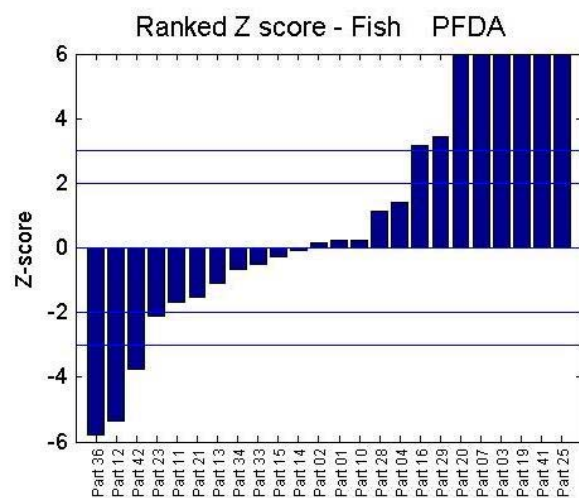
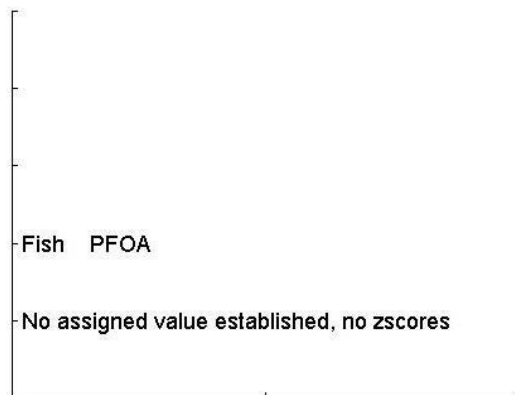
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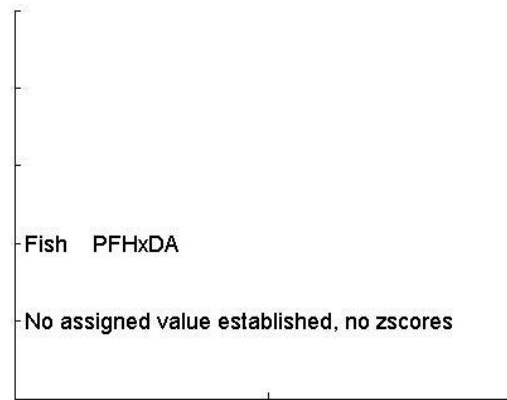
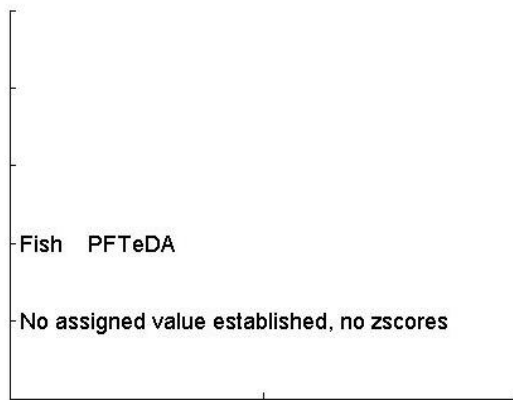
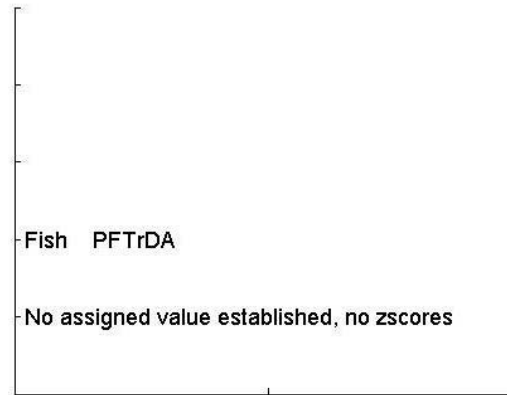
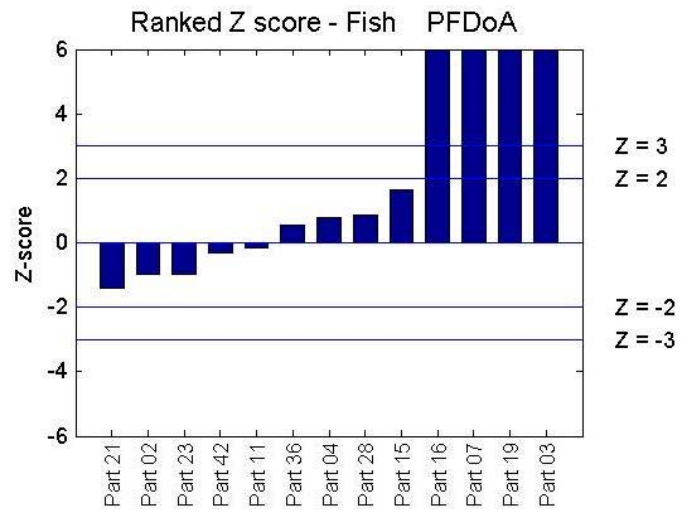


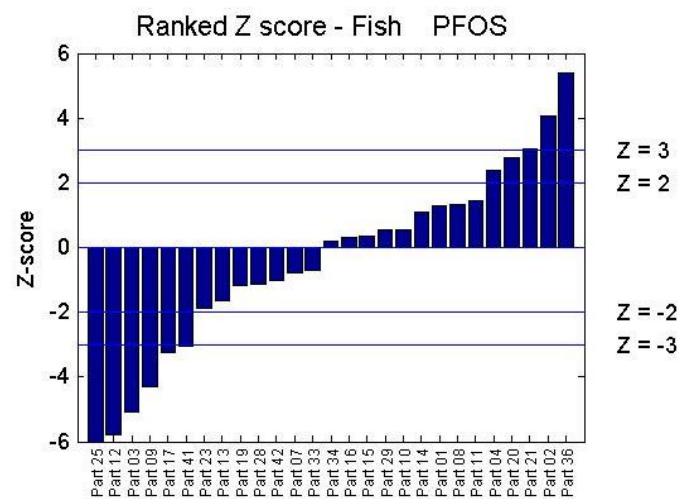
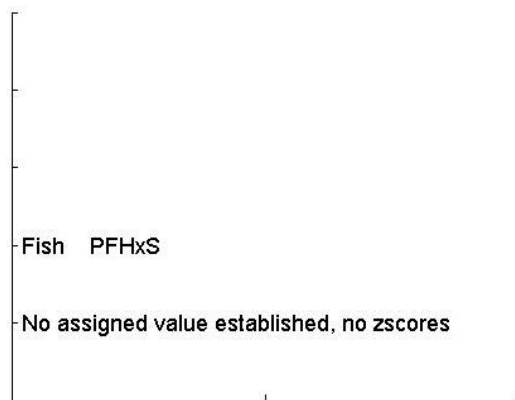
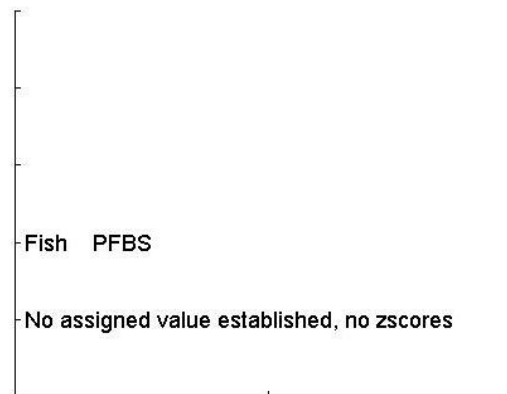
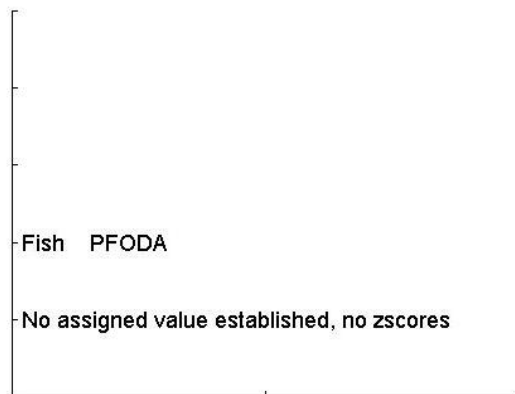


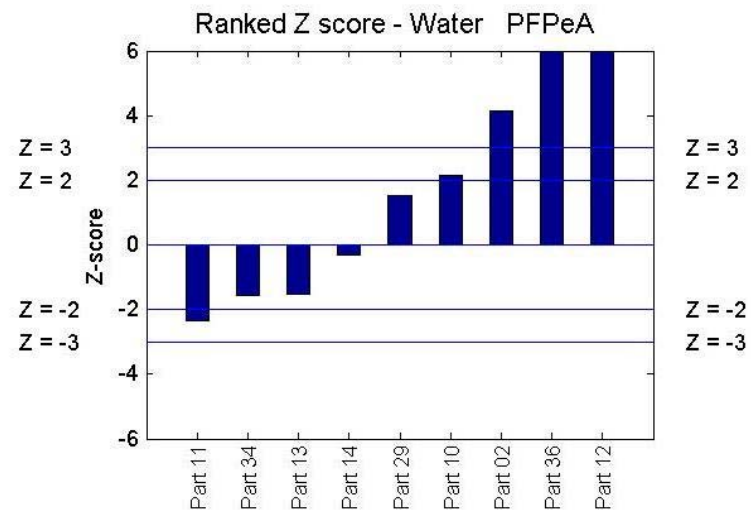
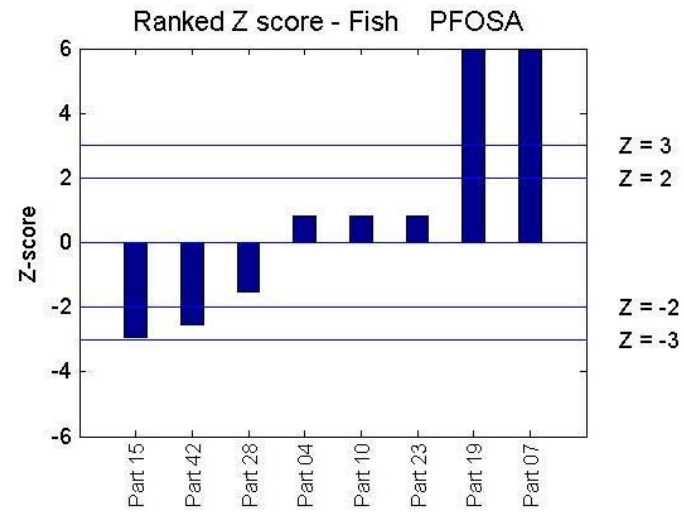
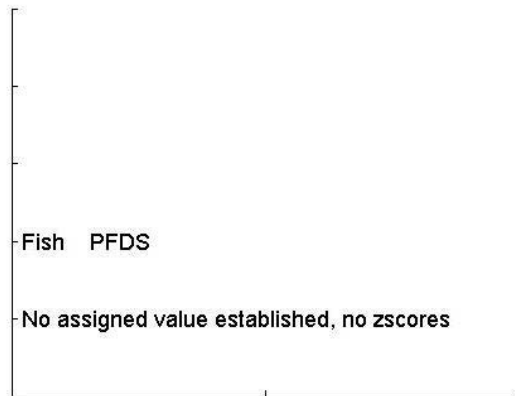


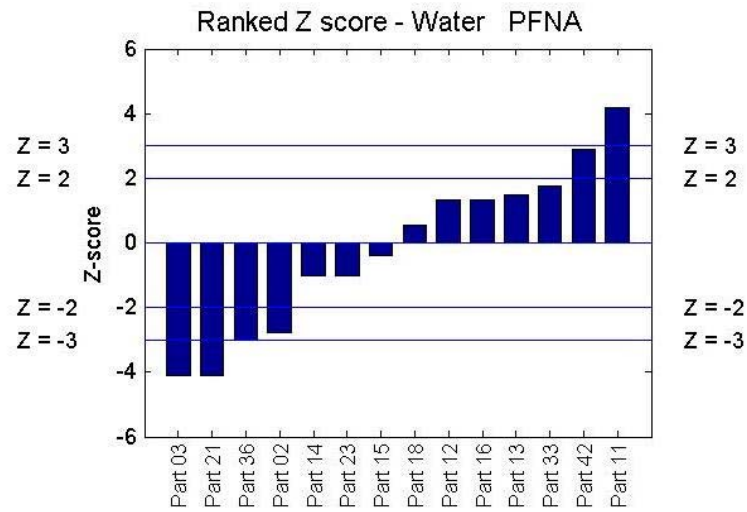
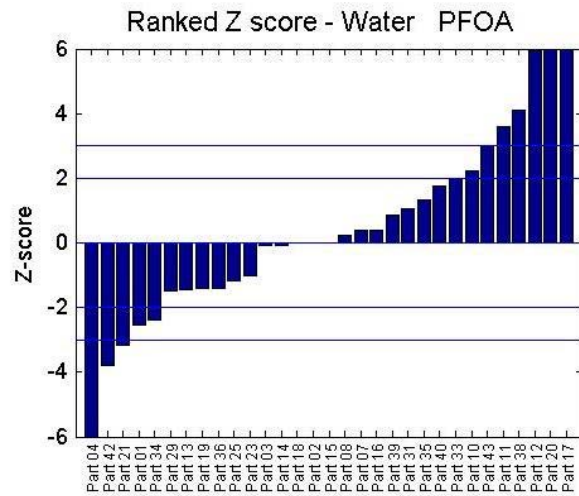
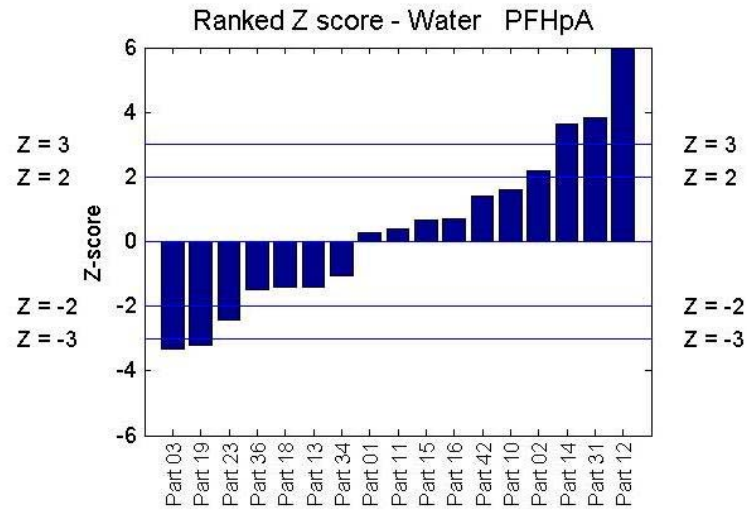
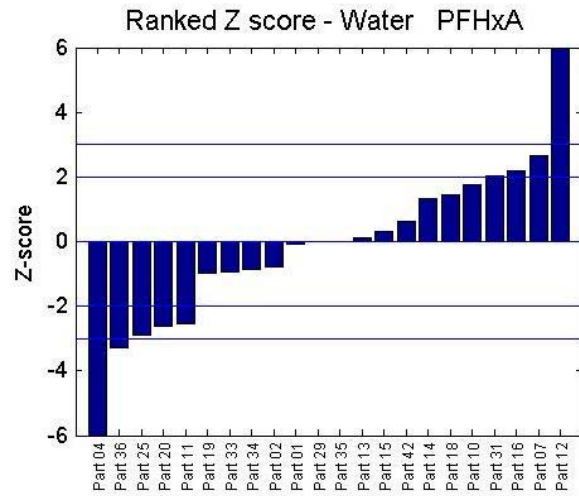


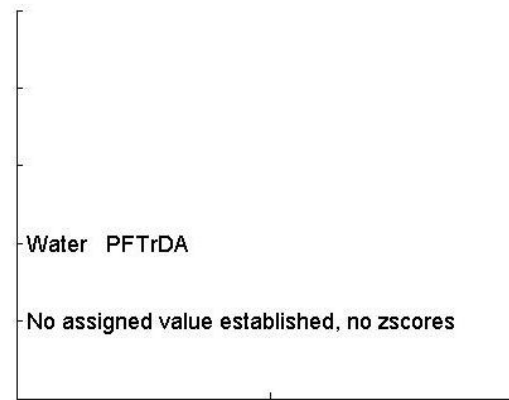
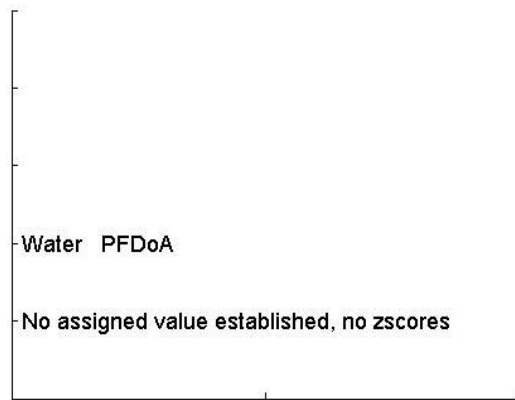
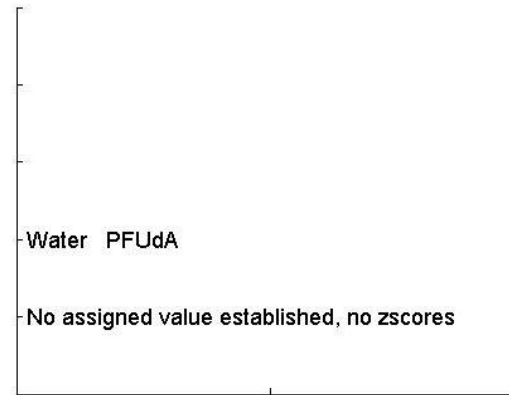
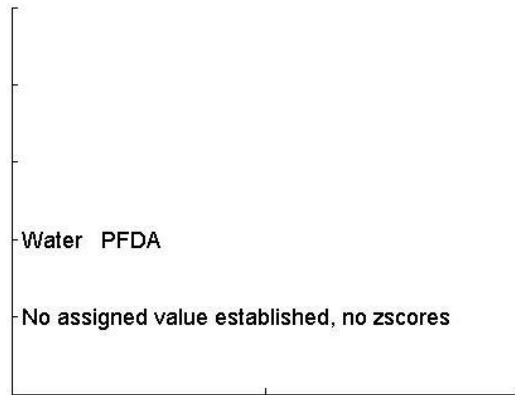


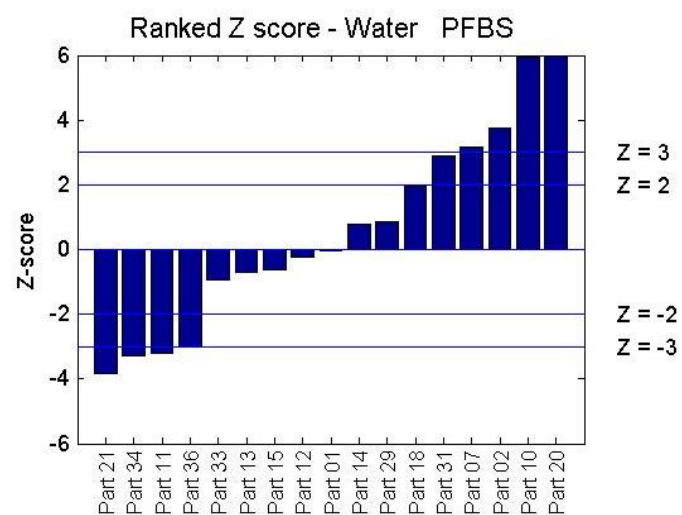
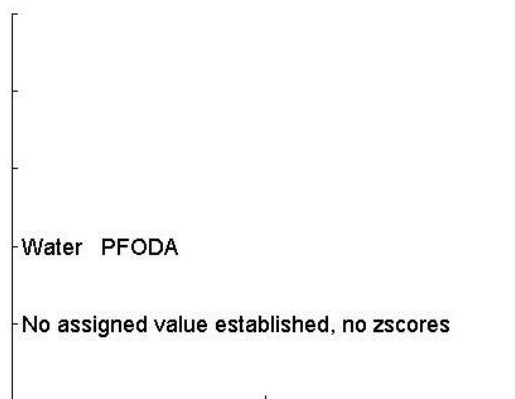
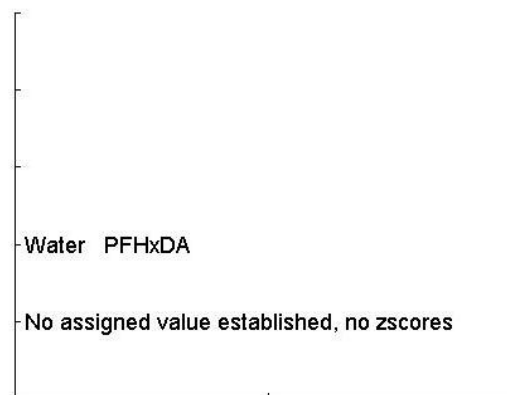
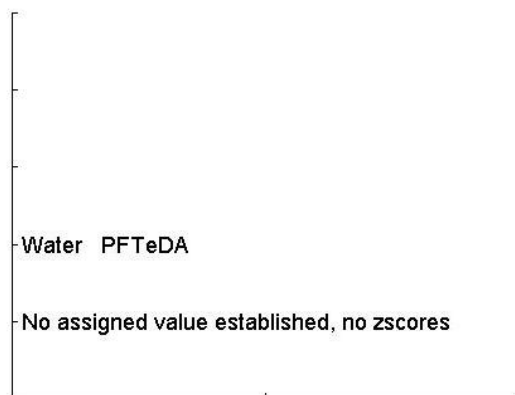


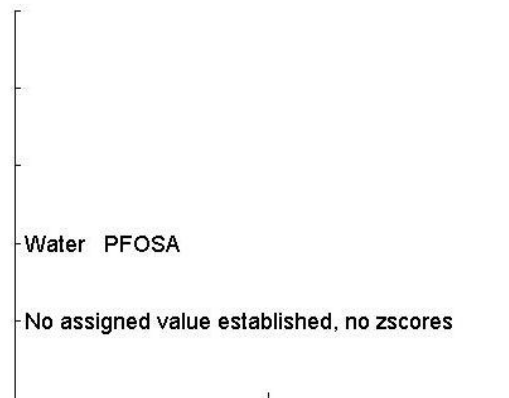
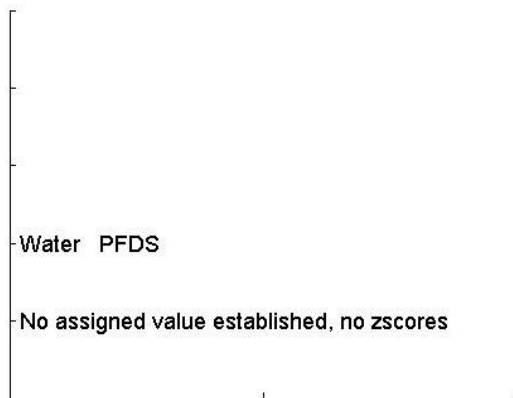
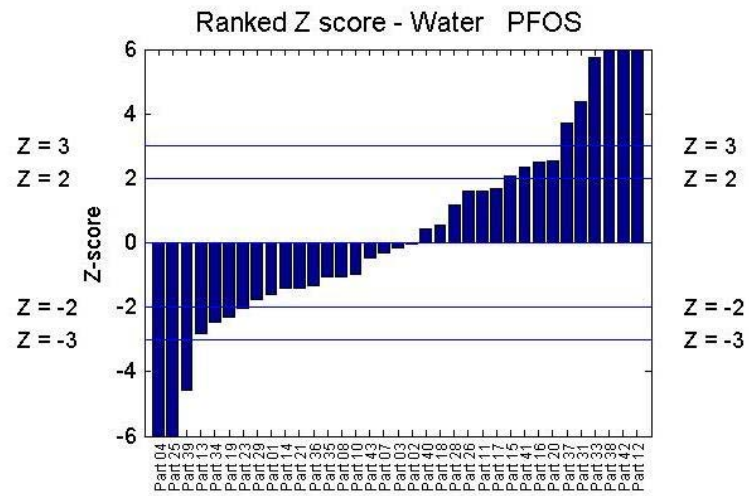
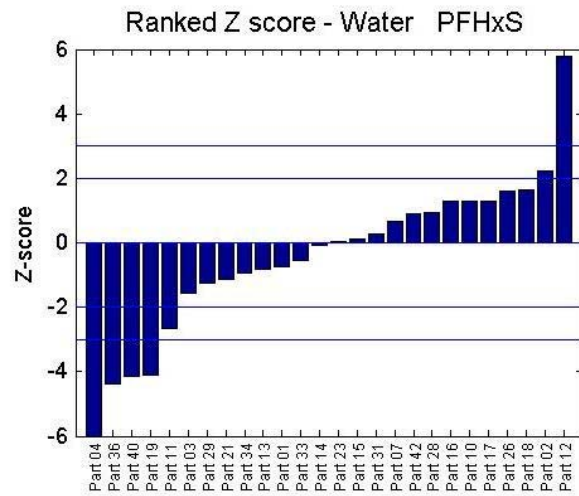


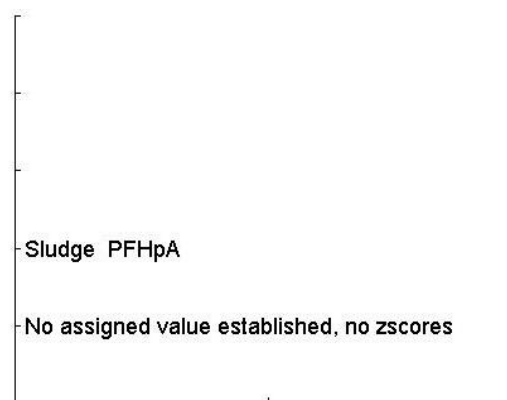
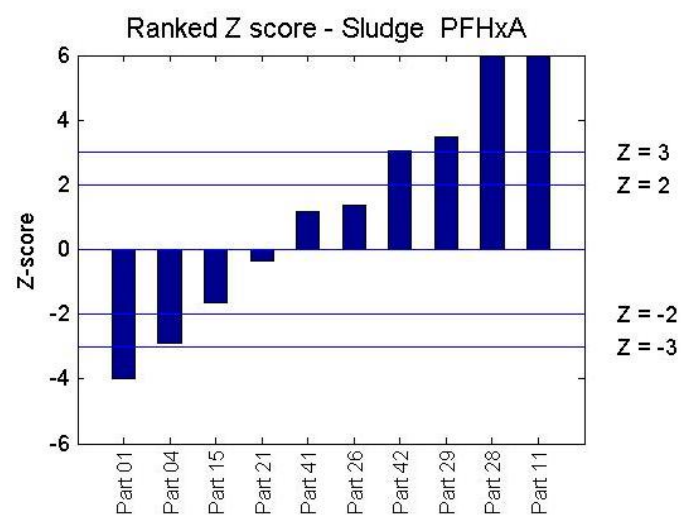
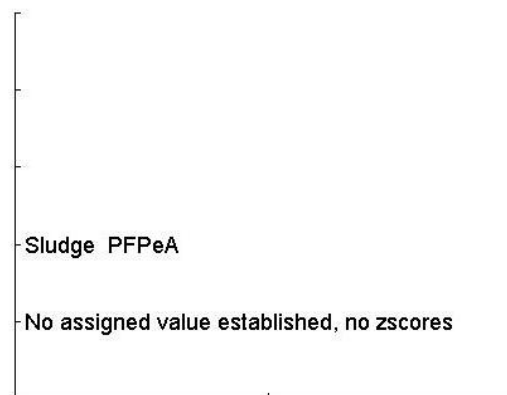
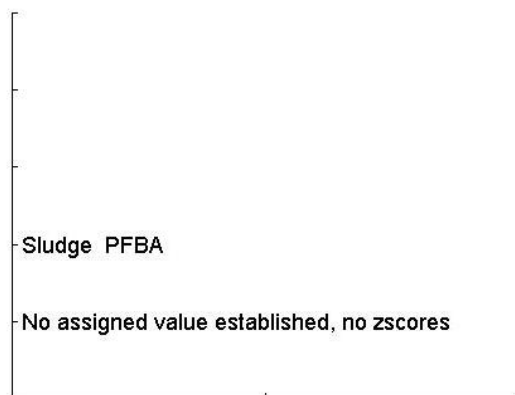


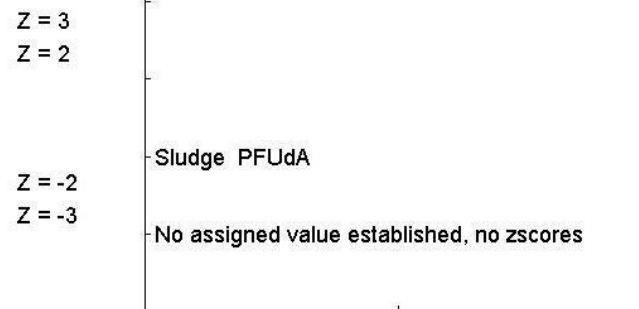
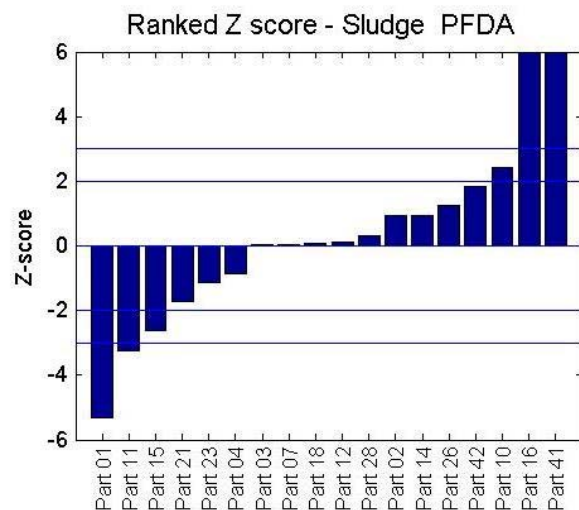
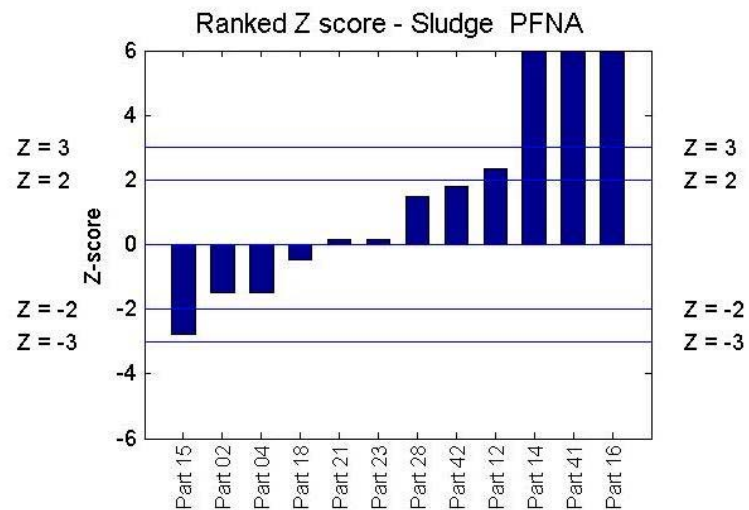
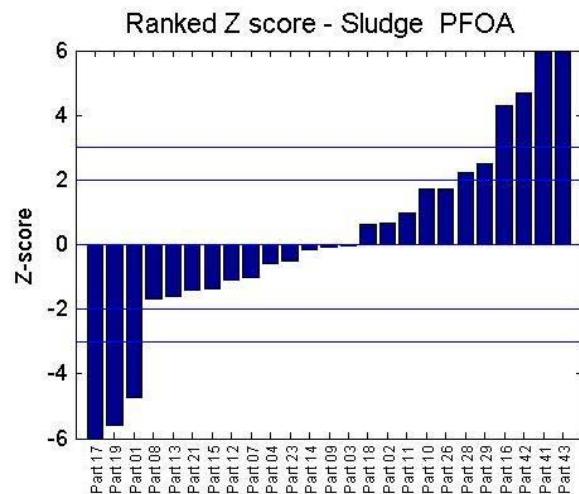


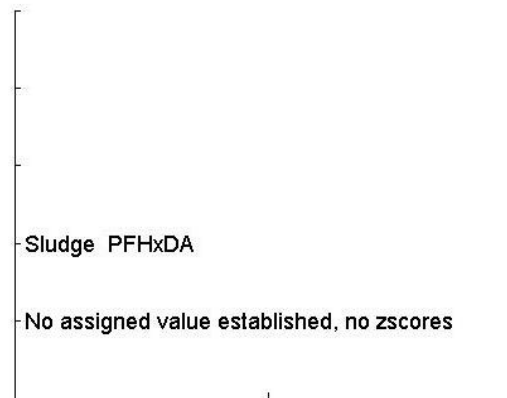
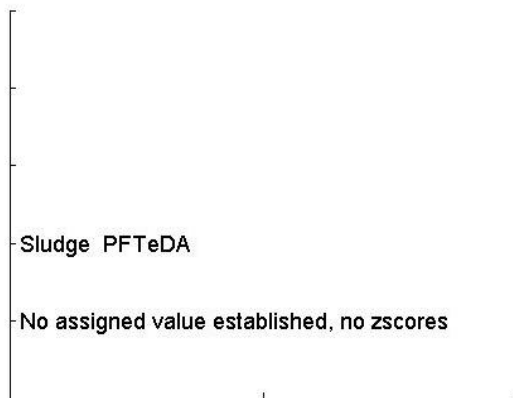
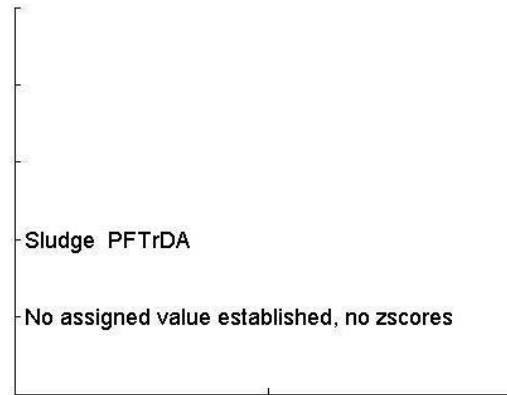
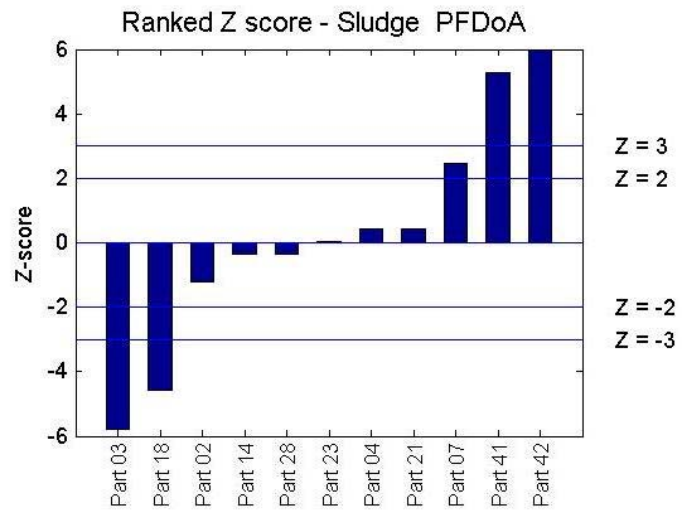


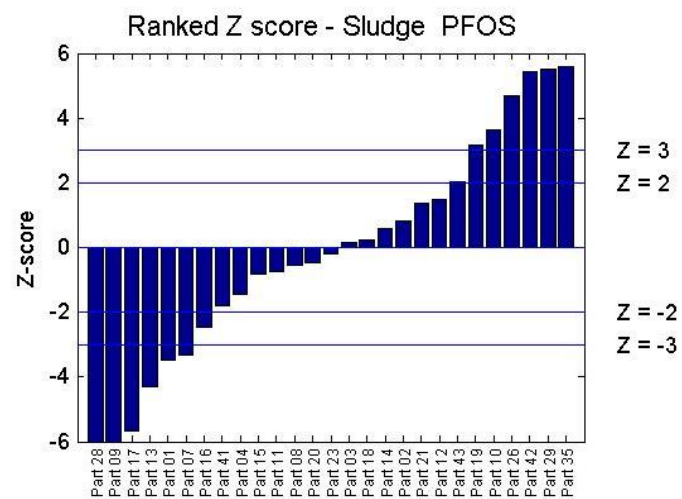
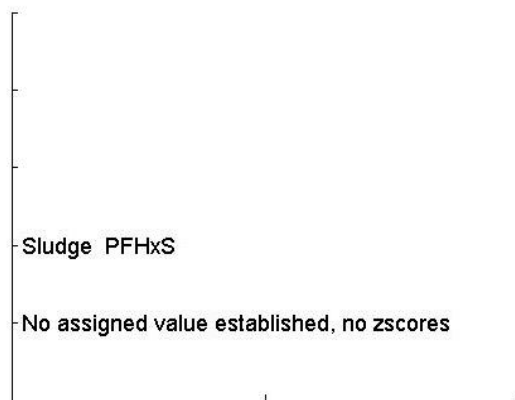
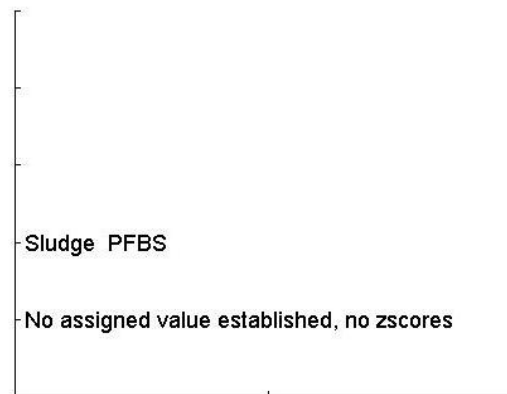
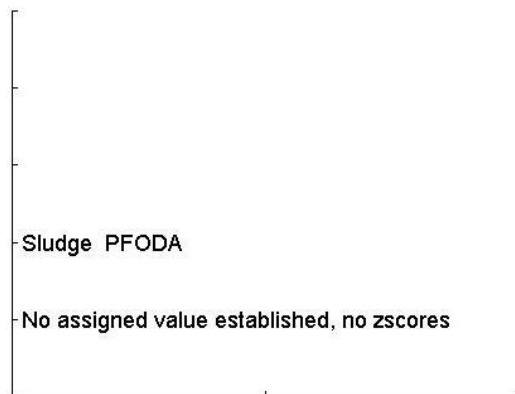


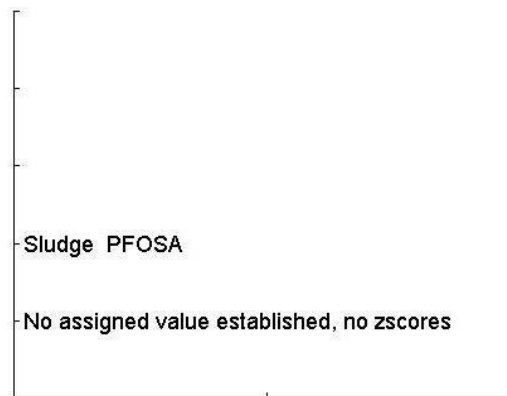
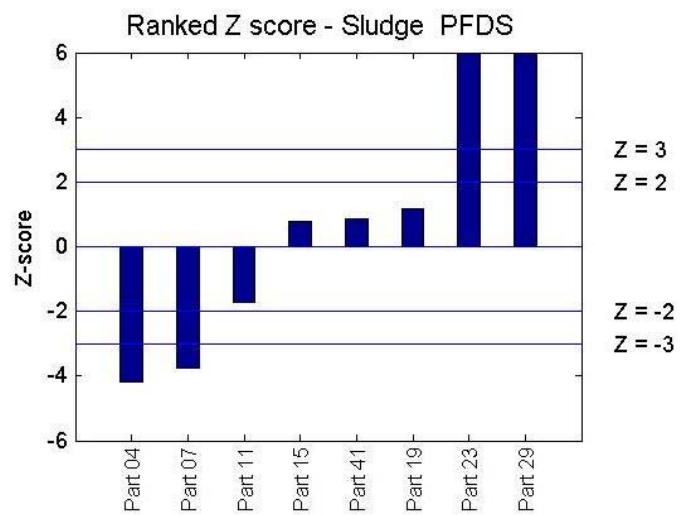


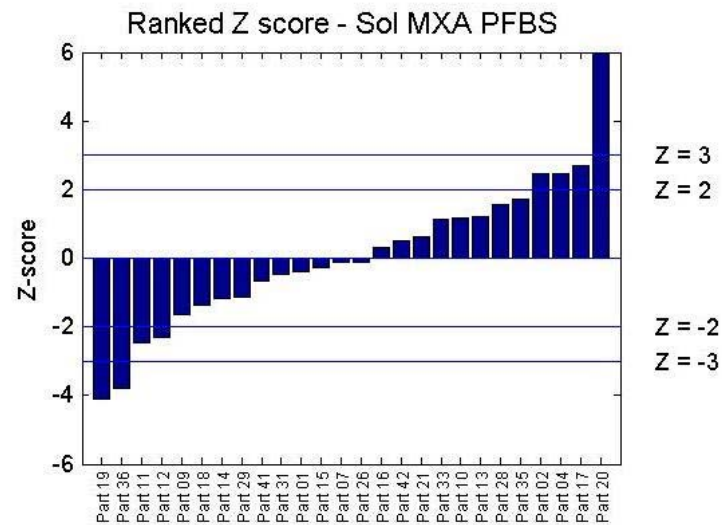
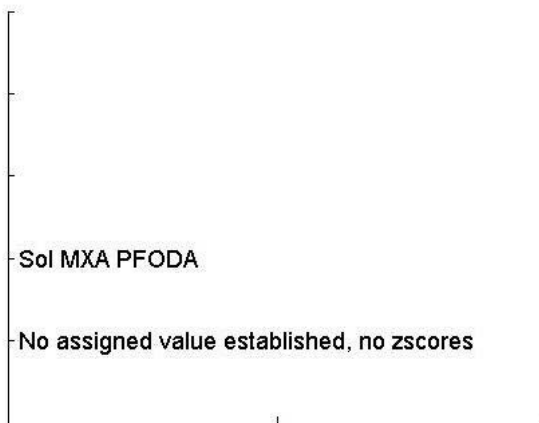
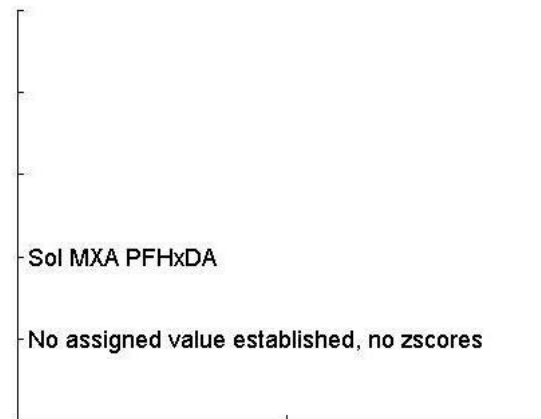
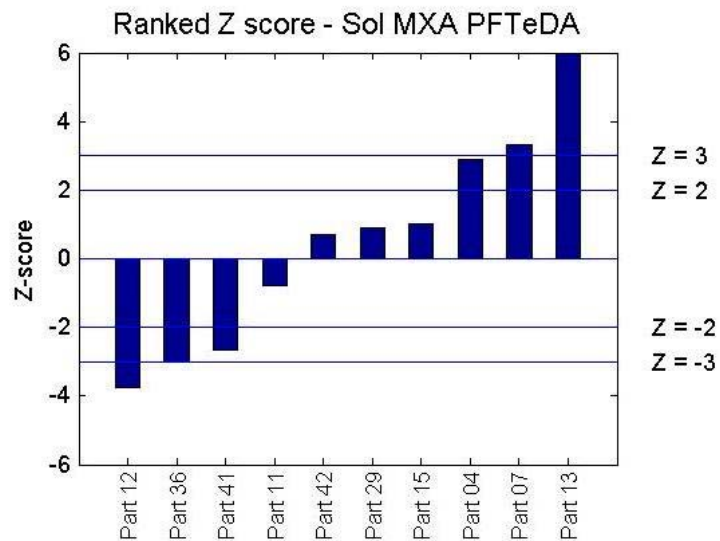


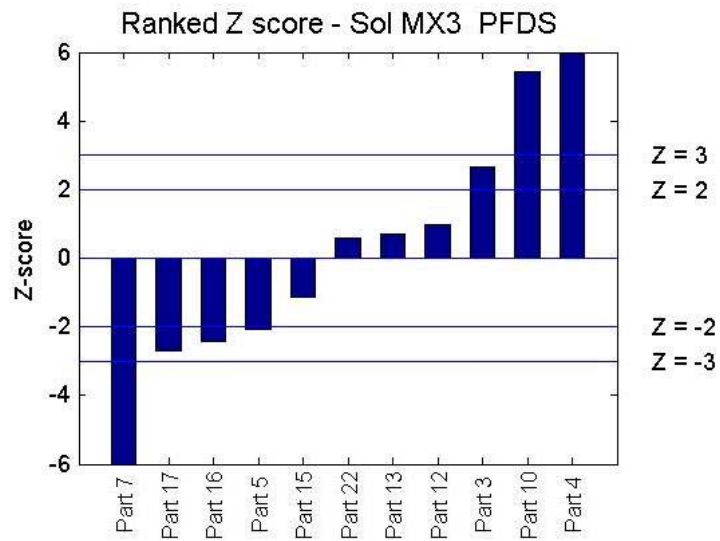
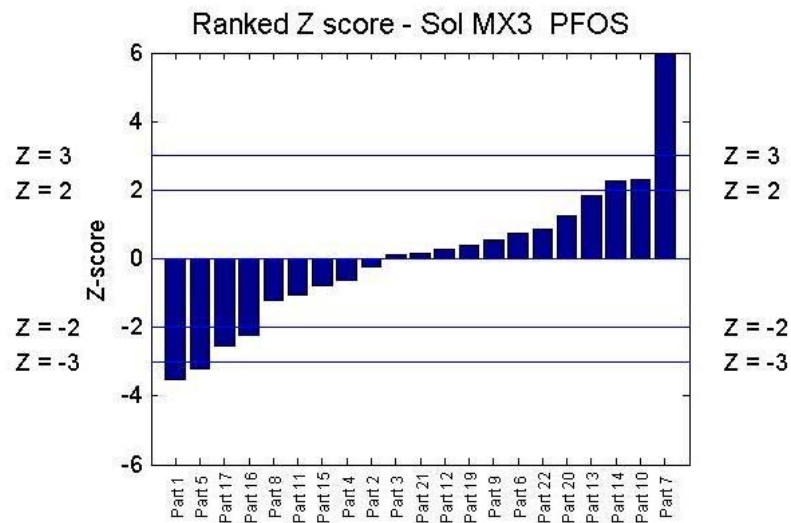
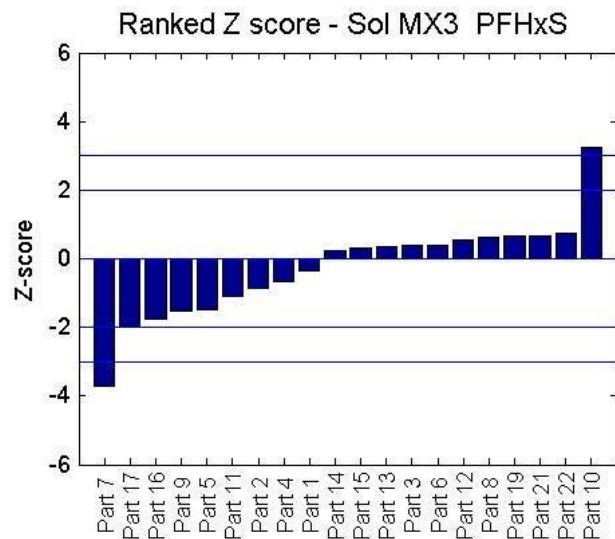


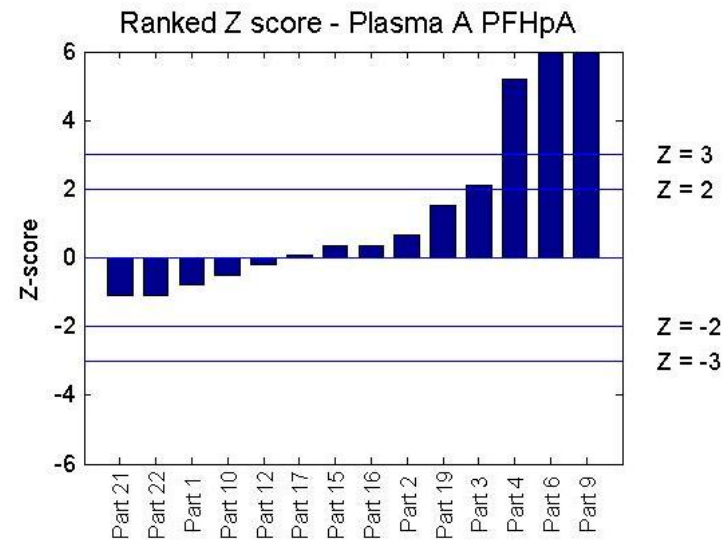
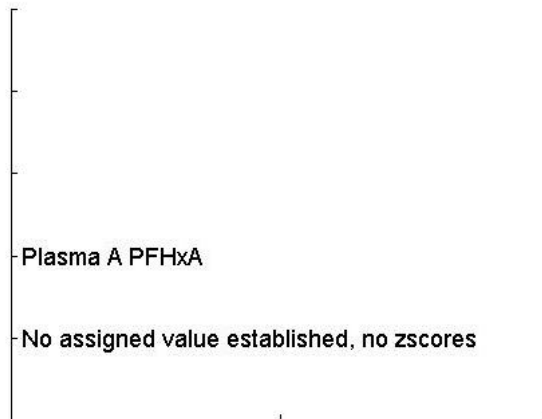
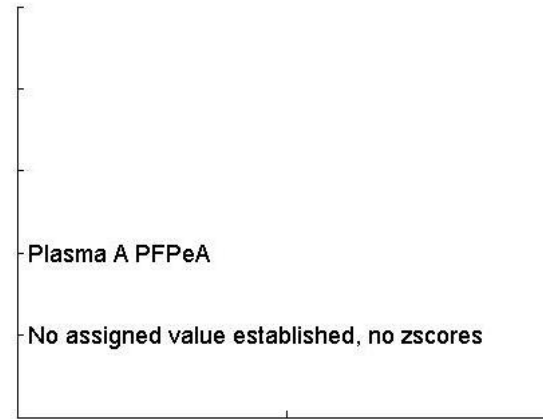
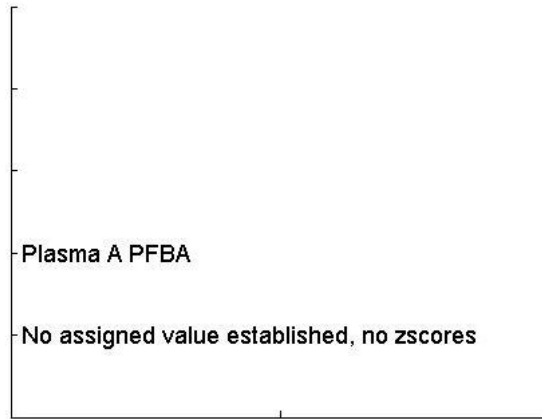


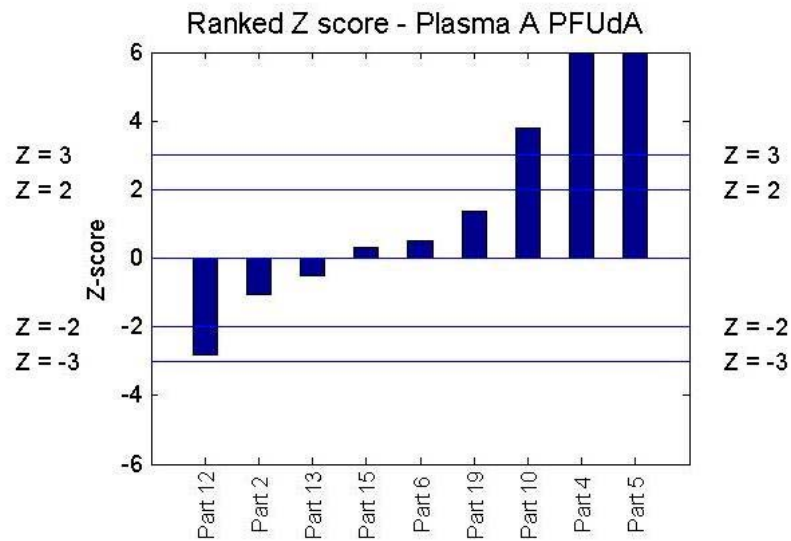
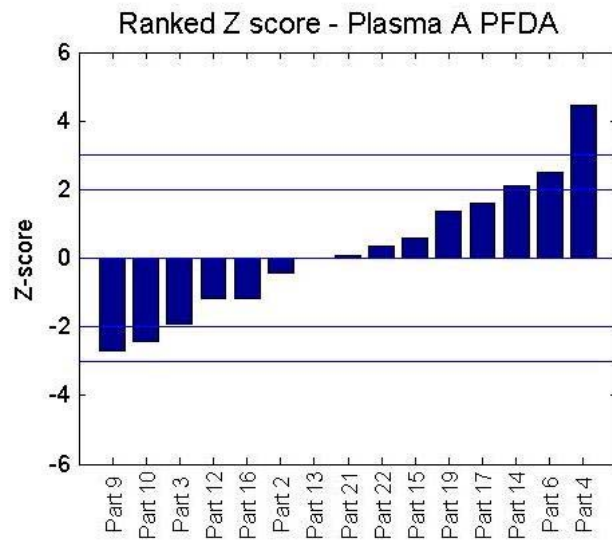
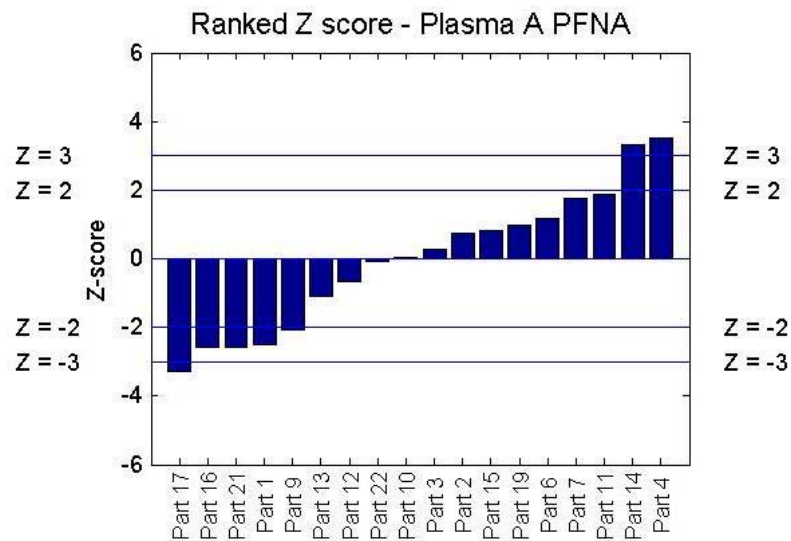
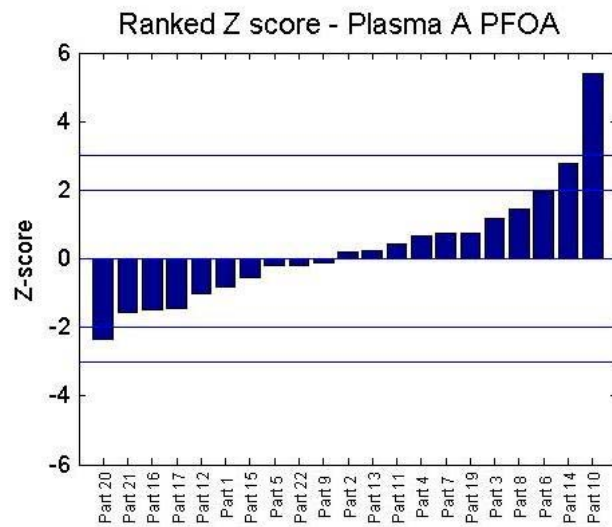


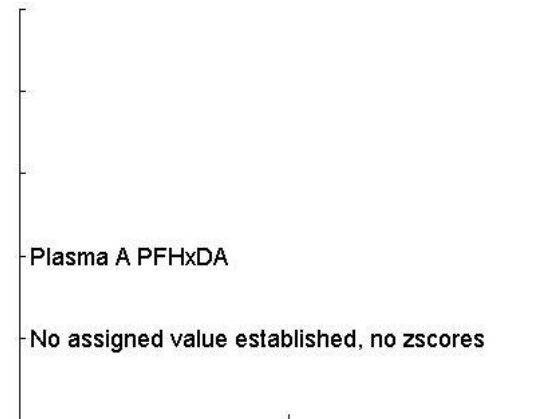
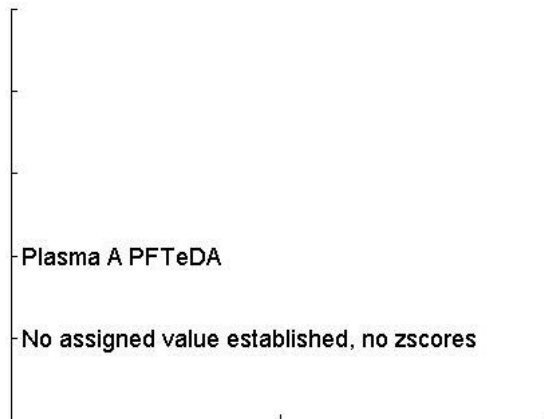
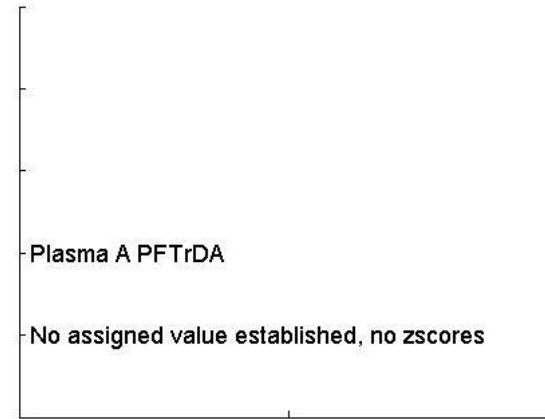
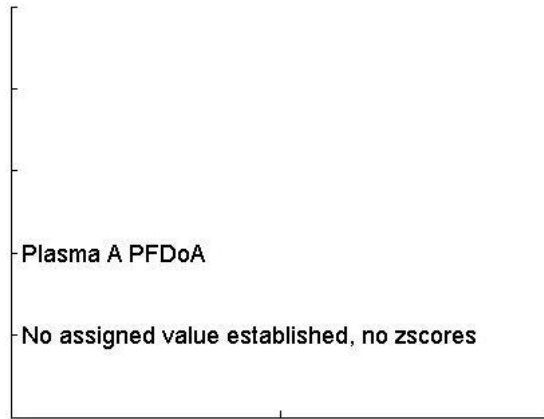


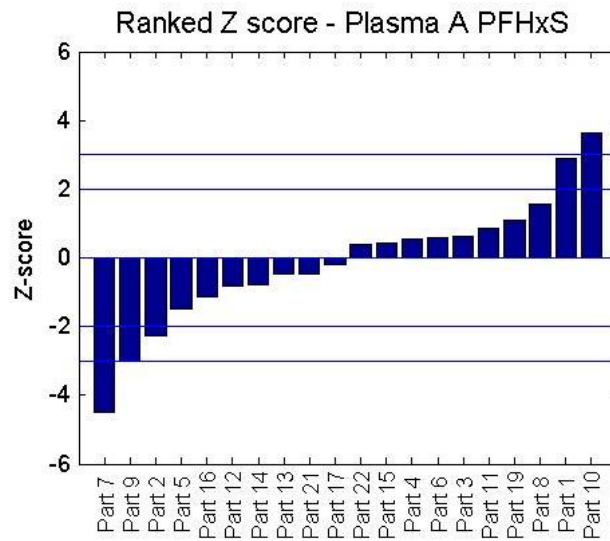
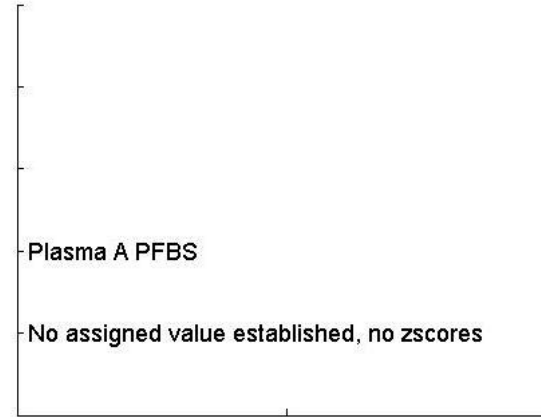
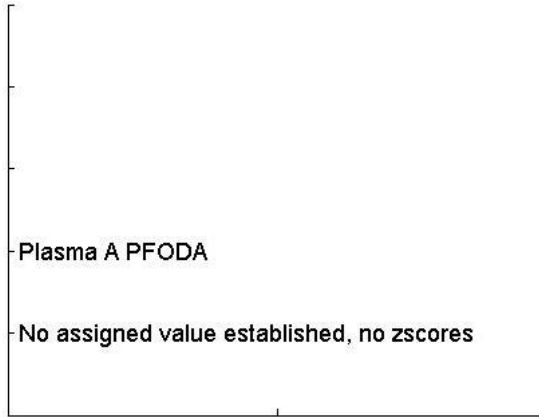




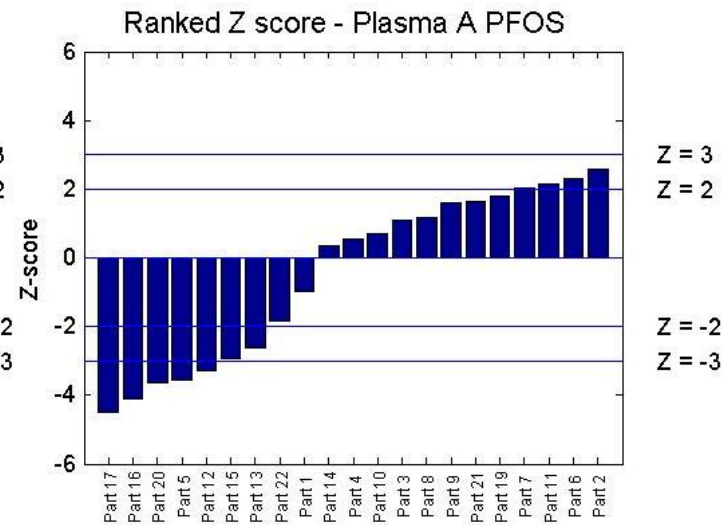




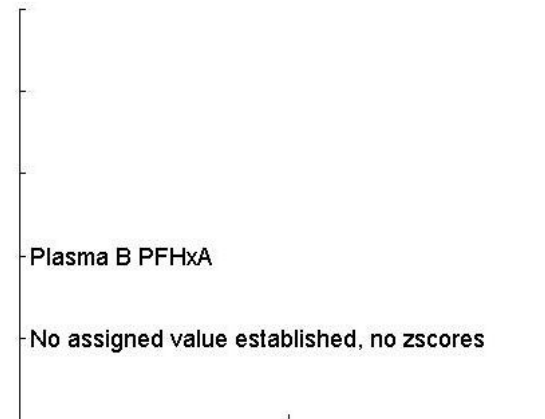
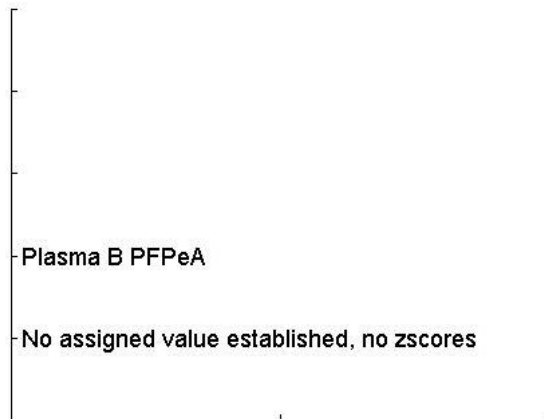
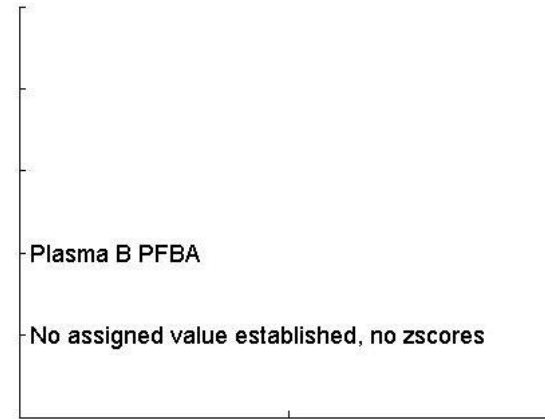
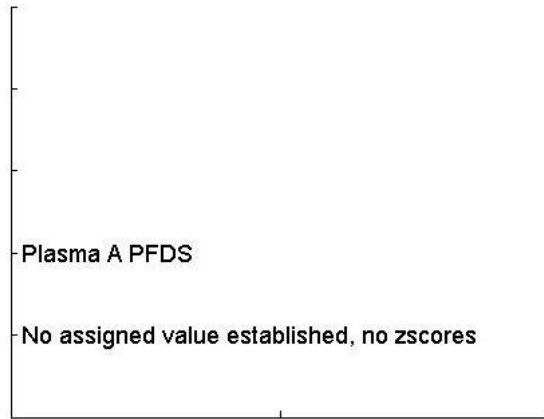


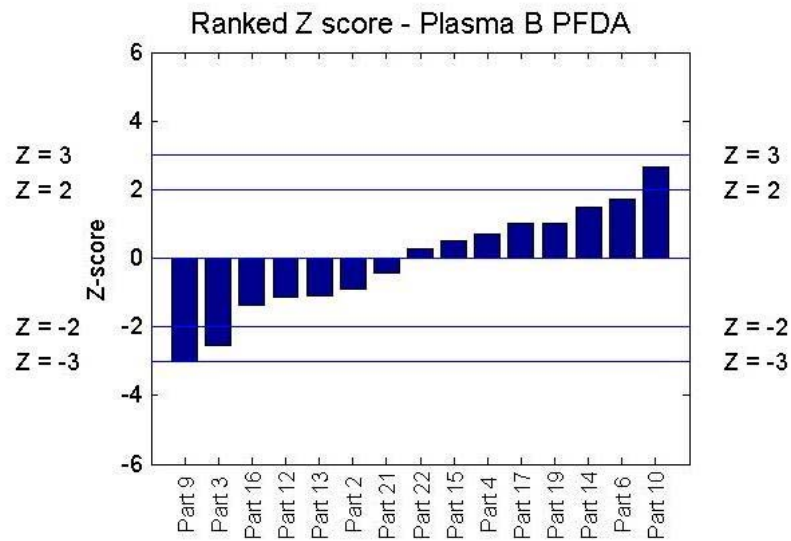
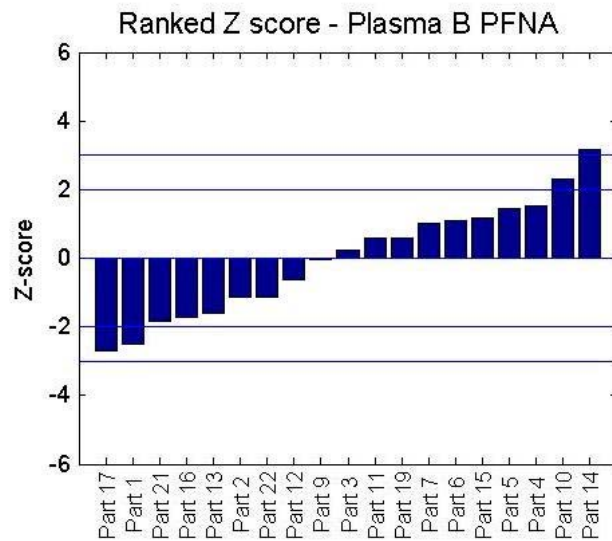
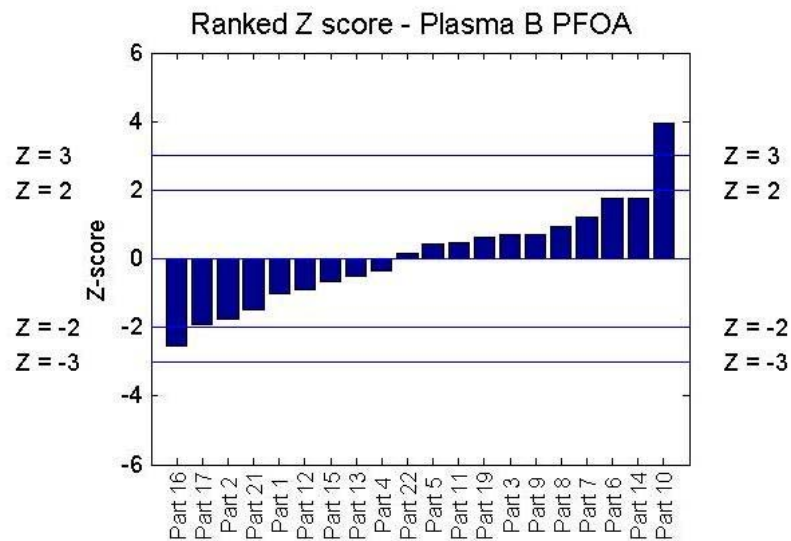
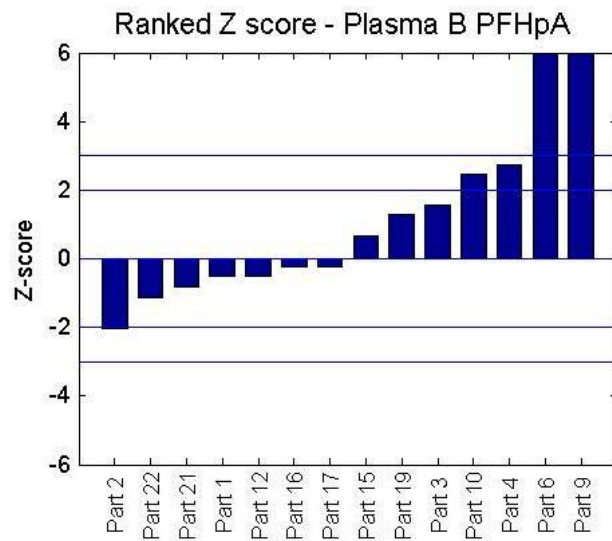


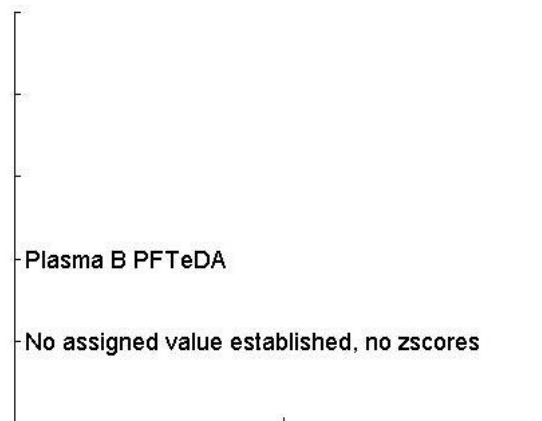
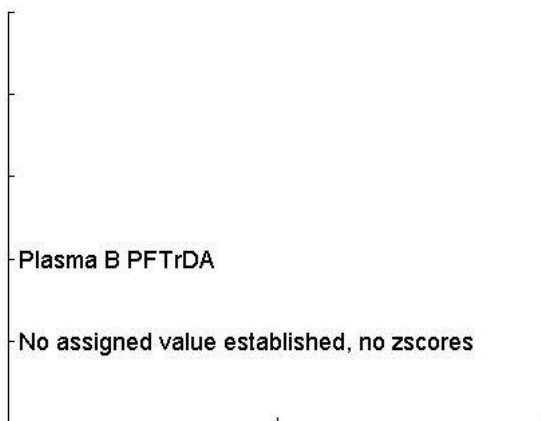
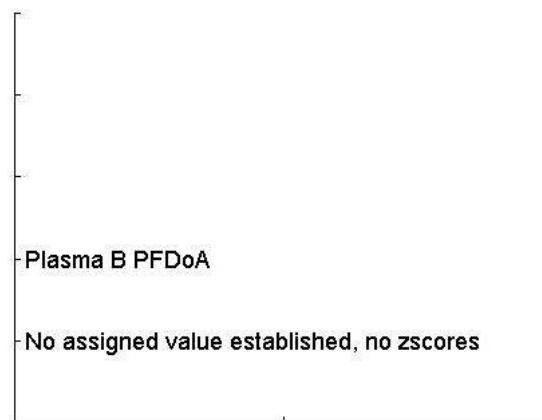
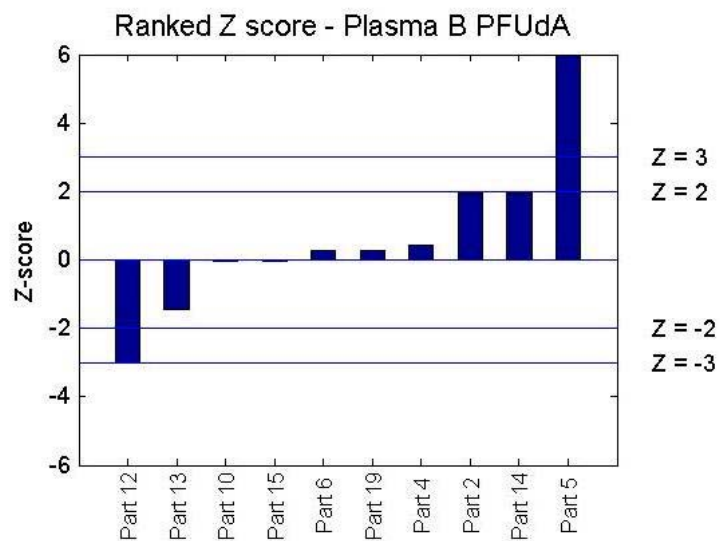
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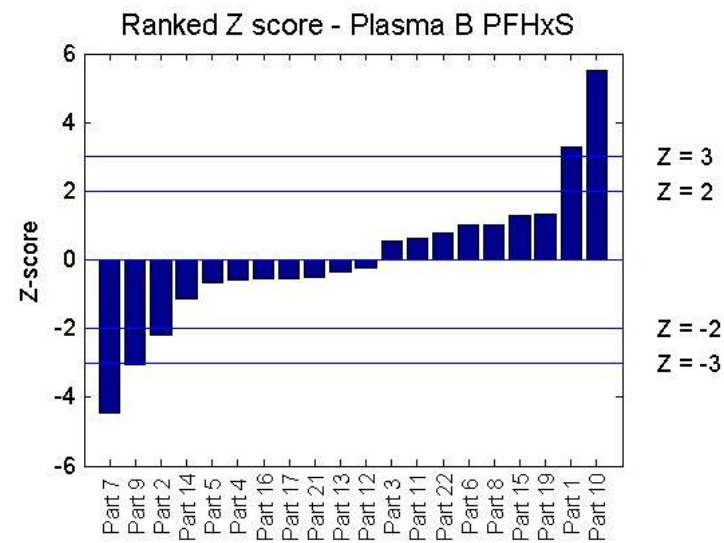
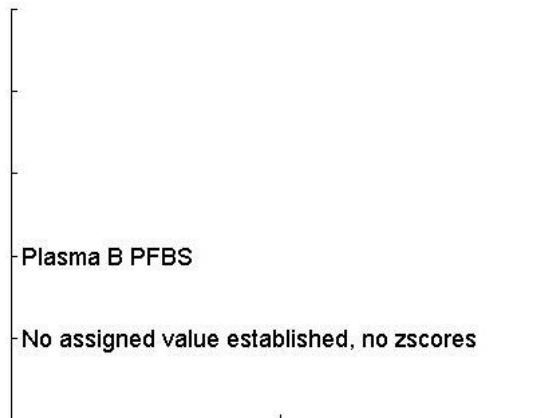
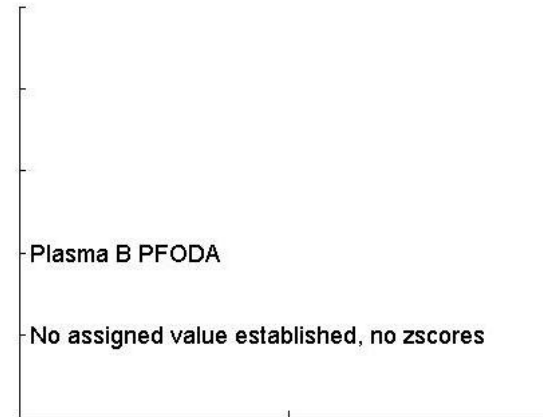
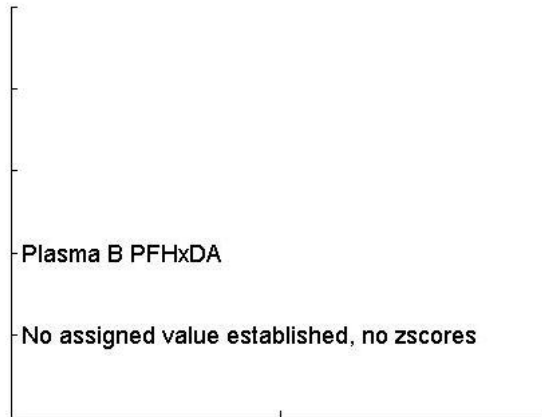


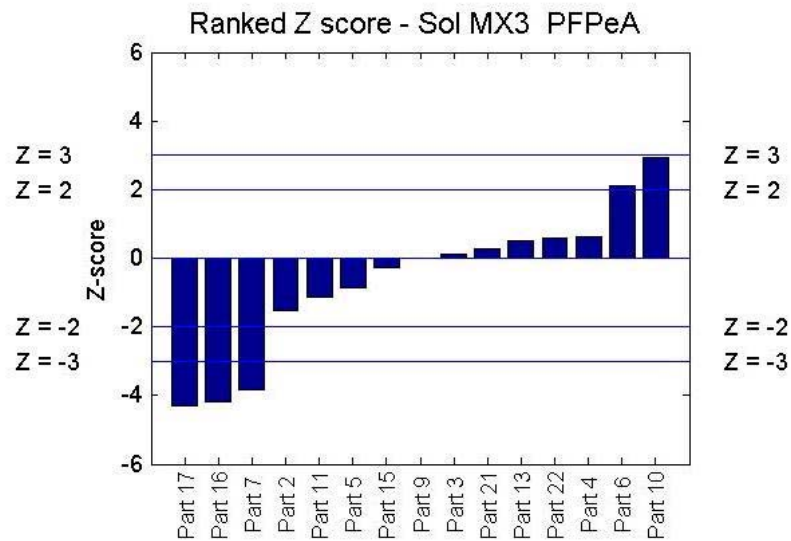
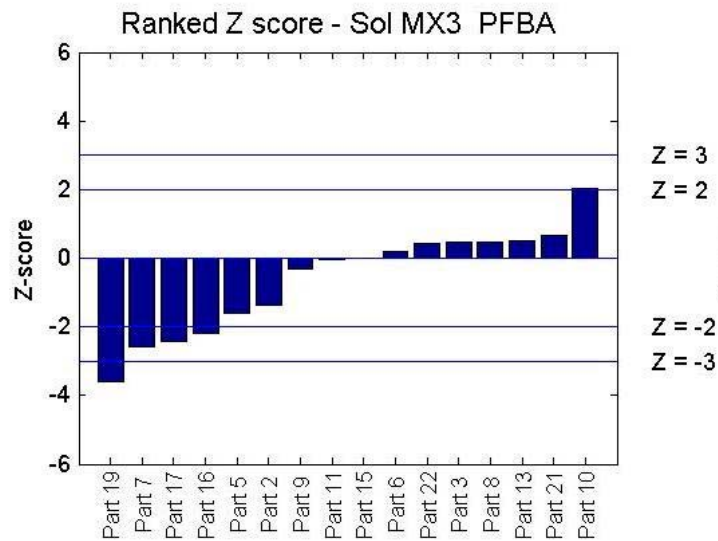
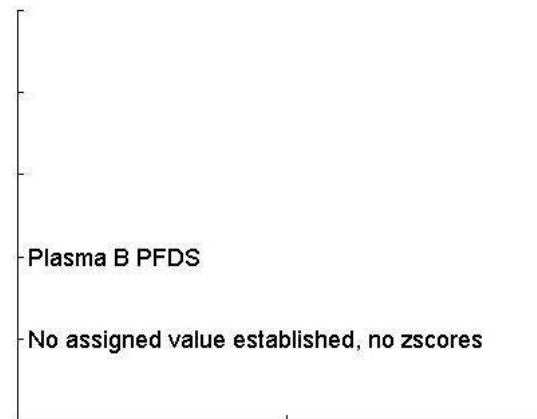
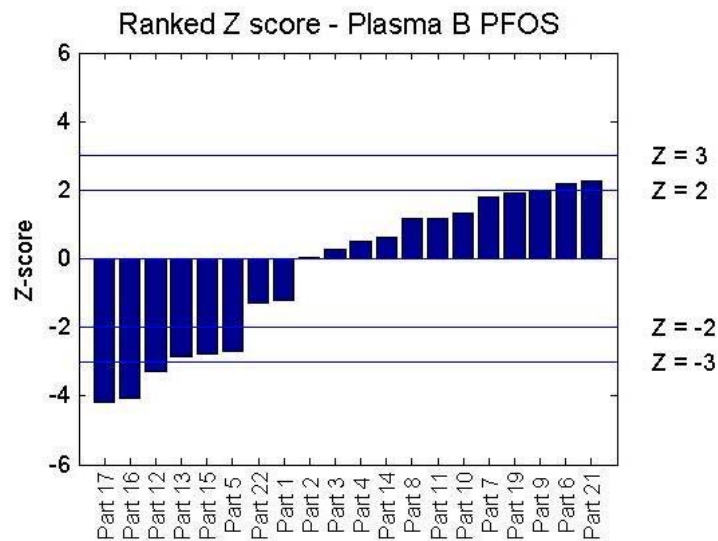
Z = 3
Z = 2
Z = -2
Z = -3

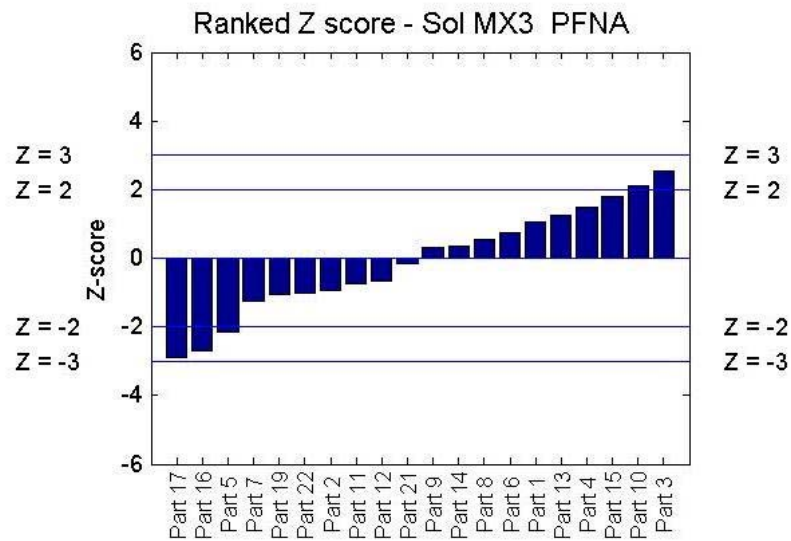
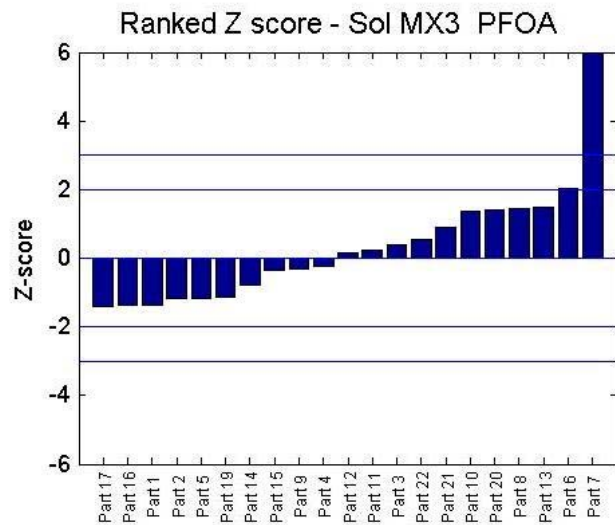
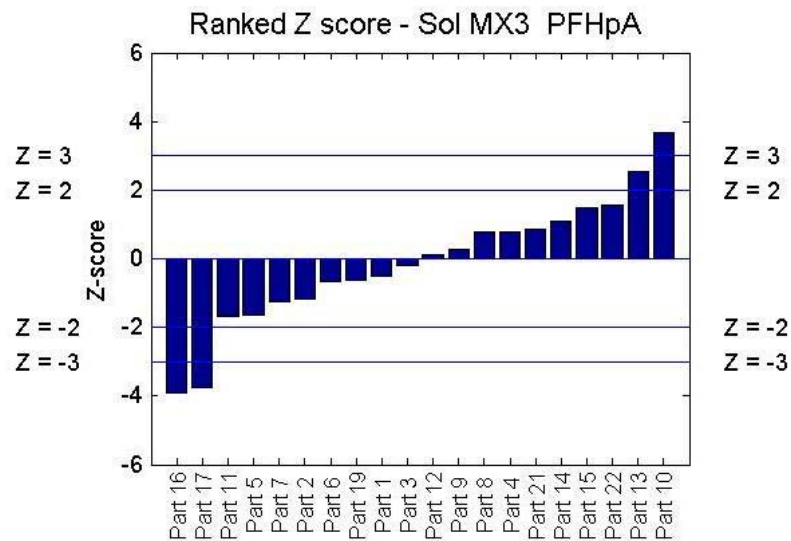
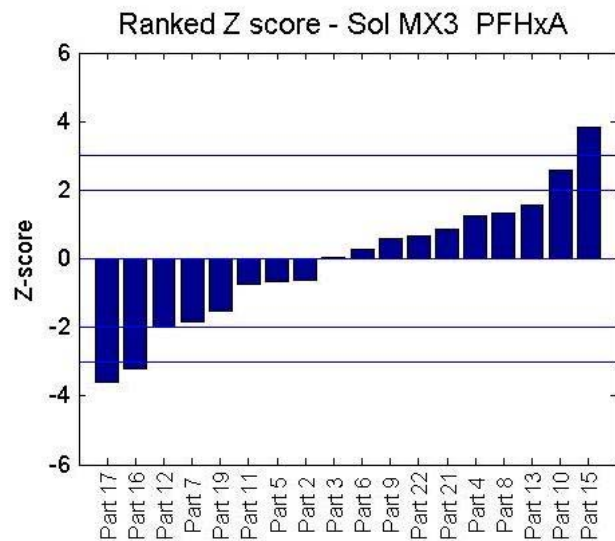


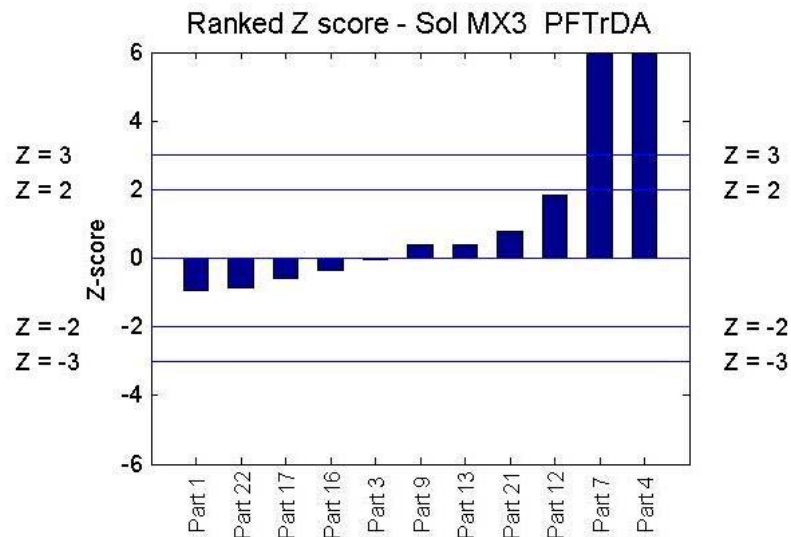
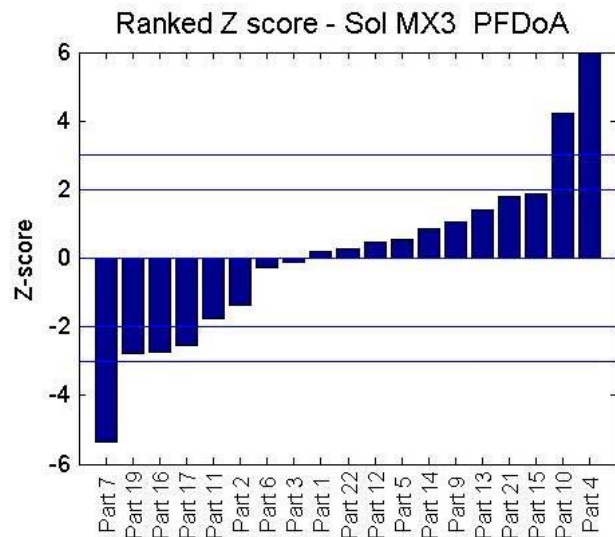
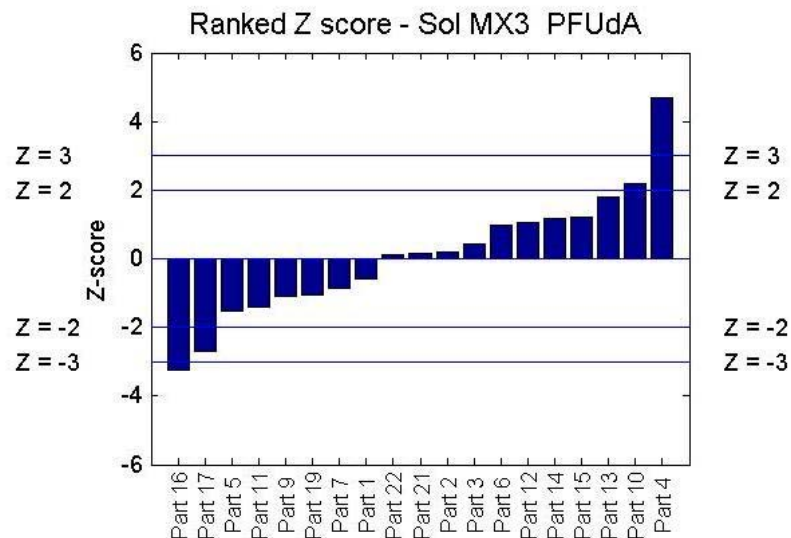
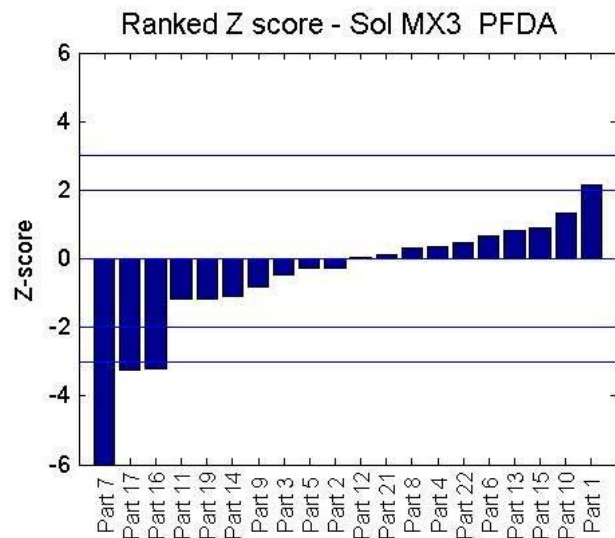


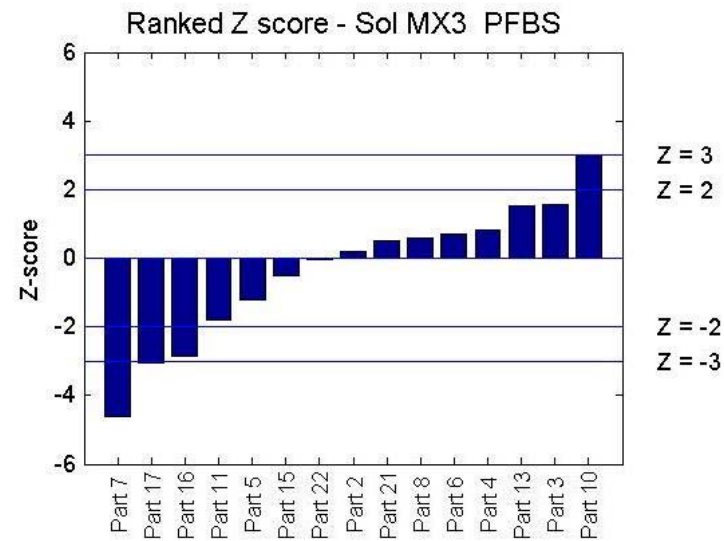
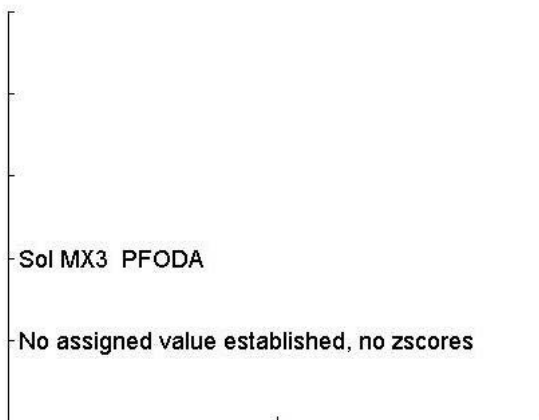
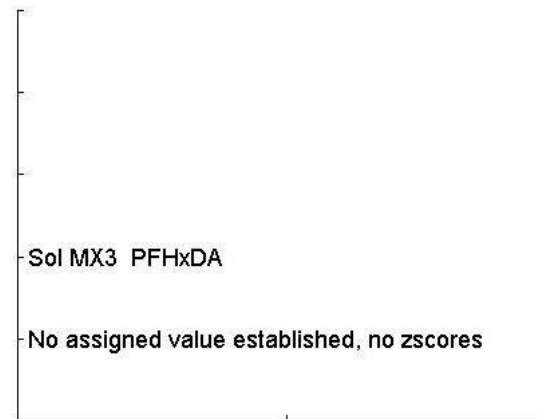
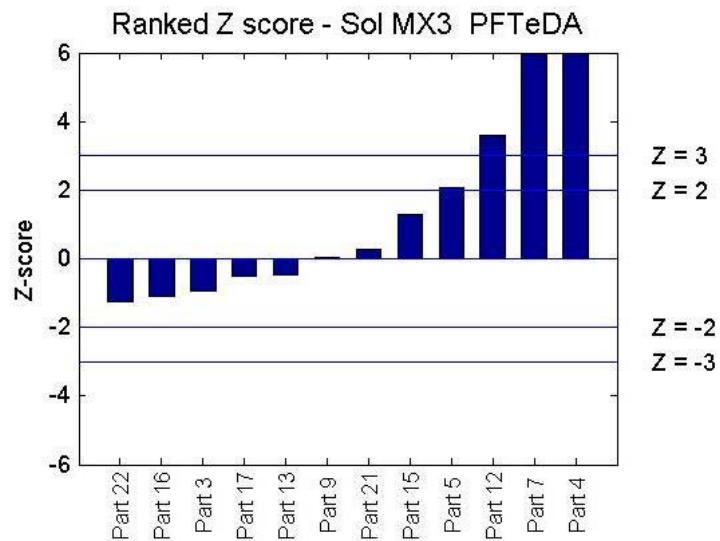




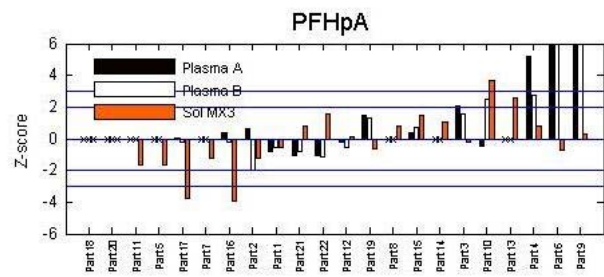




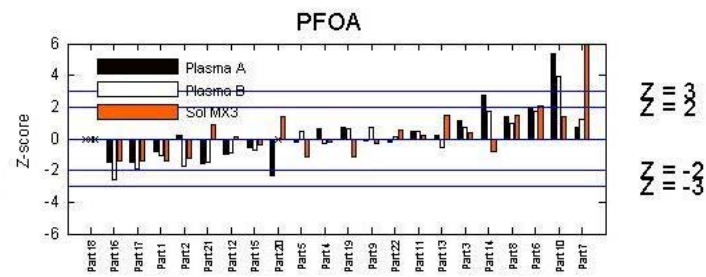




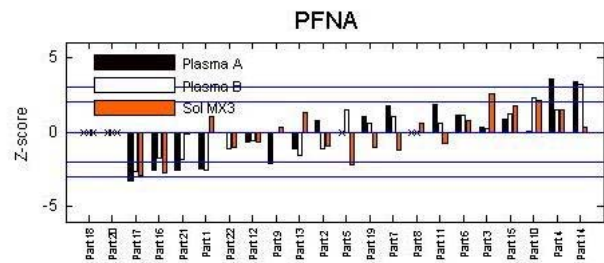
Appendix 4. Combined z-score plots



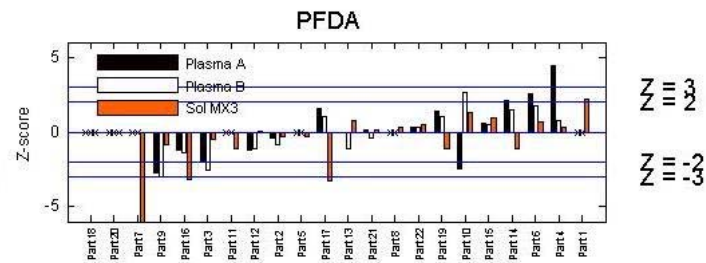
$Z \equiv 3$
 $Z \equiv -3$



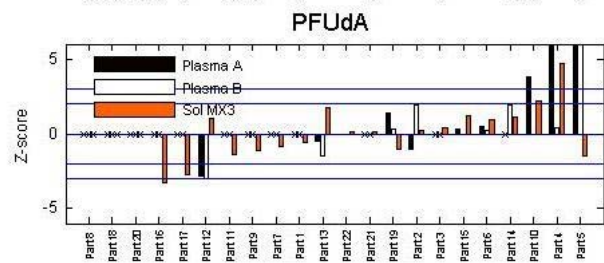
$Z \equiv 3$
 $Z \equiv -3$



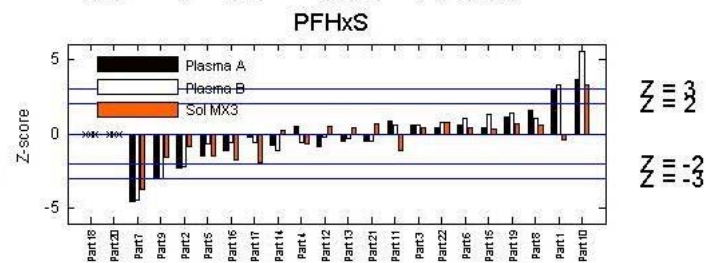
$Z \equiv 3$
 $Z \equiv -3$



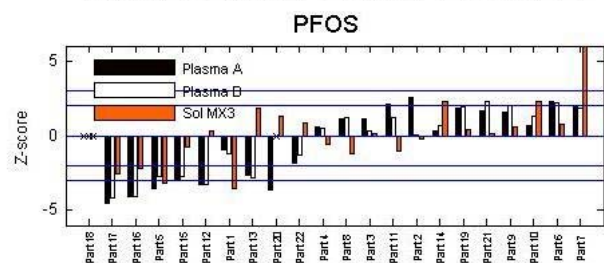
$Z \equiv 3$
 $Z \equiv -3$



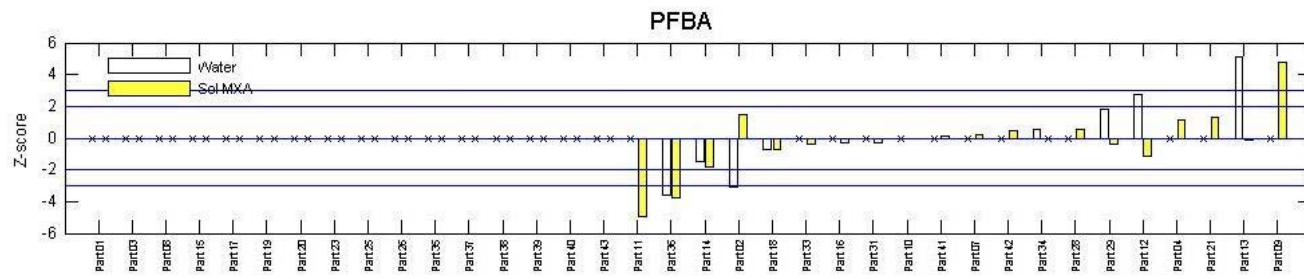
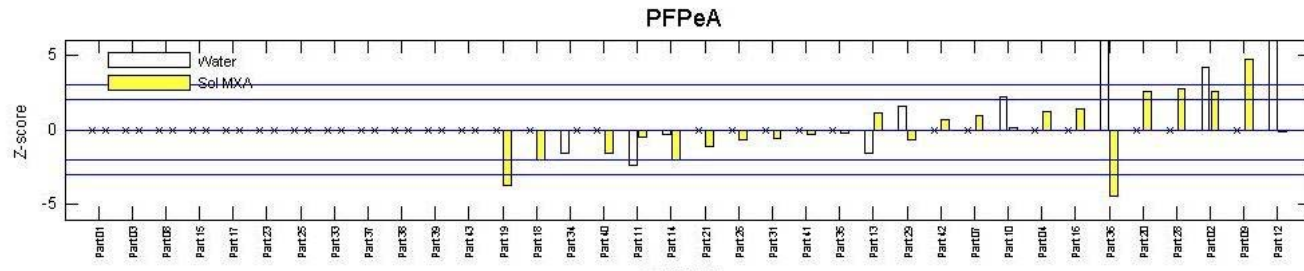
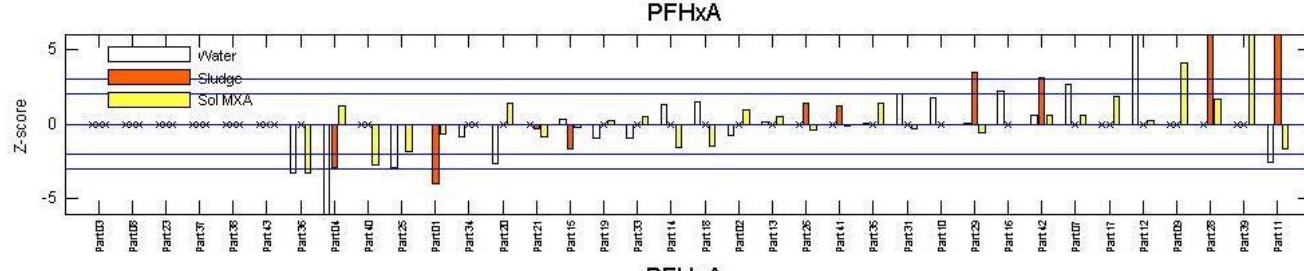
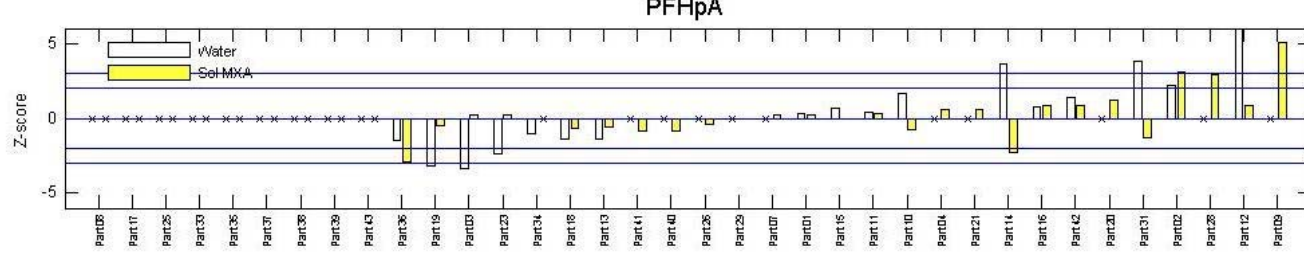
$Z \equiv 3$
 $Z \equiv -3$

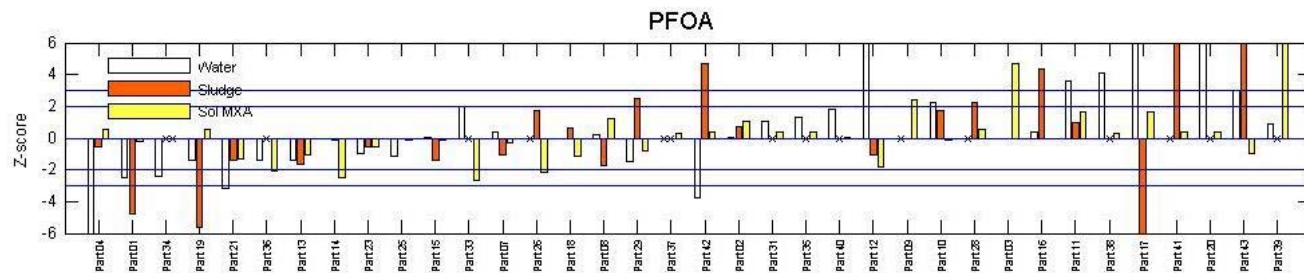
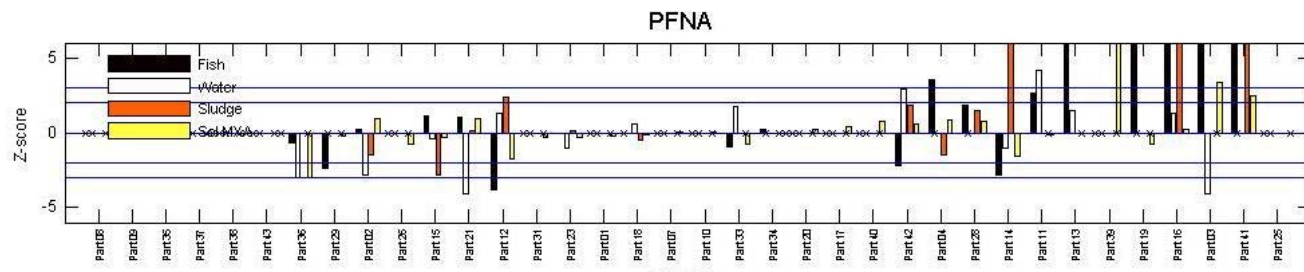
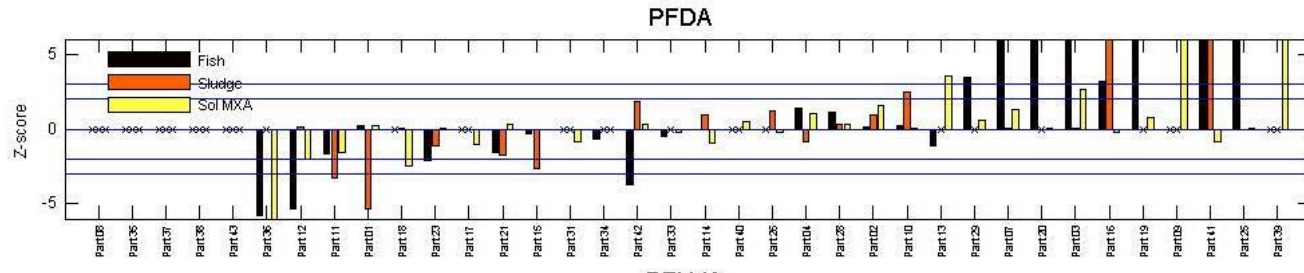
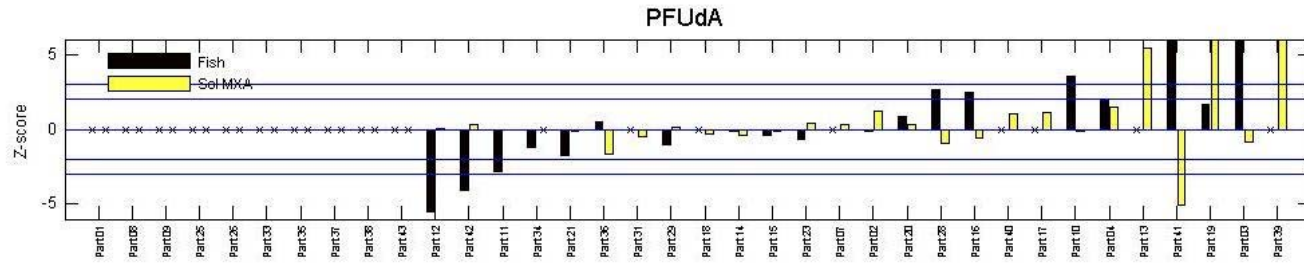


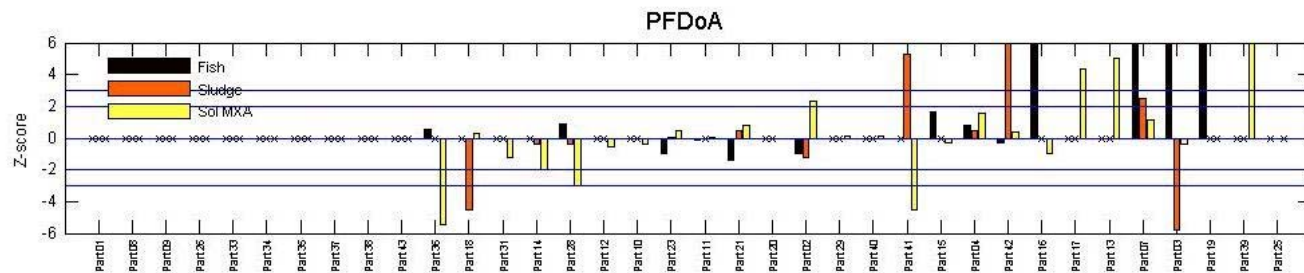
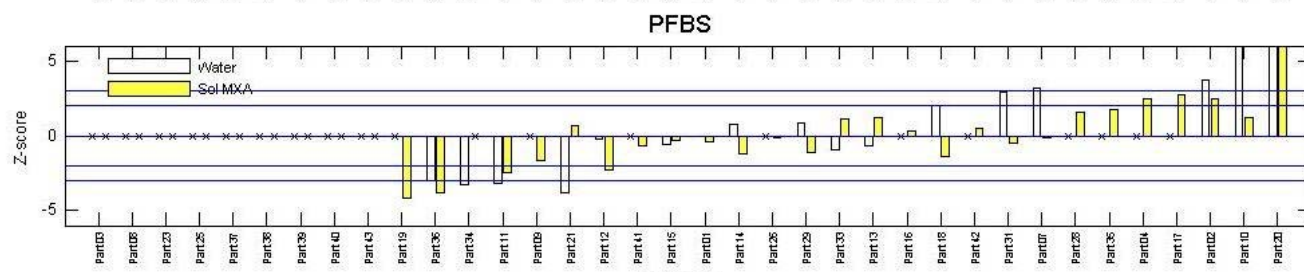
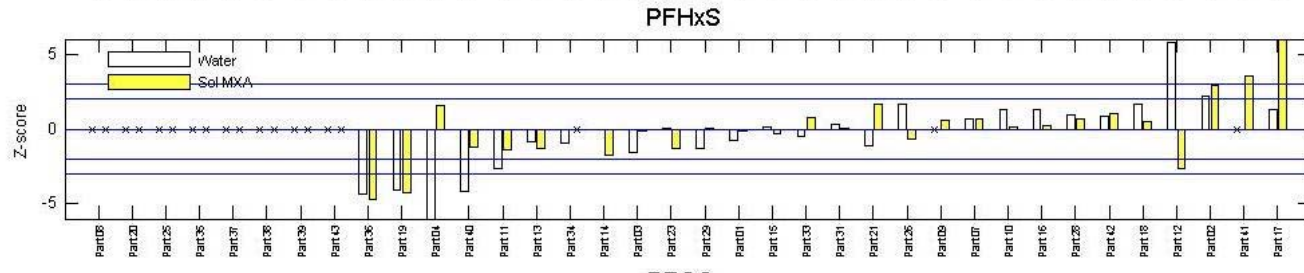
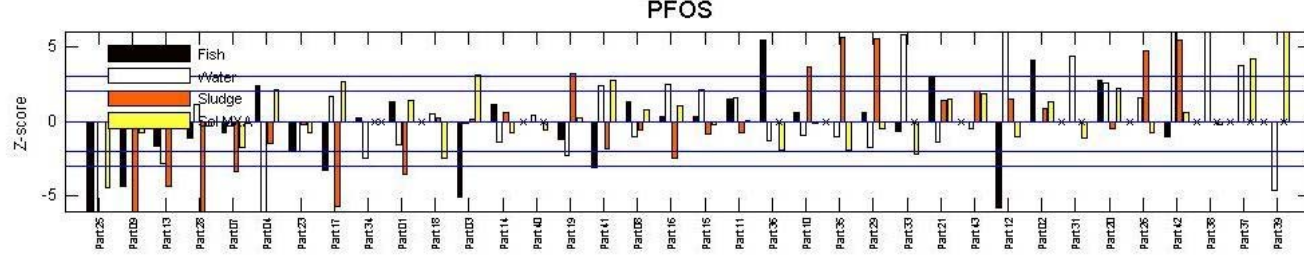
$Z \equiv 3$
 $Z \equiv -3$

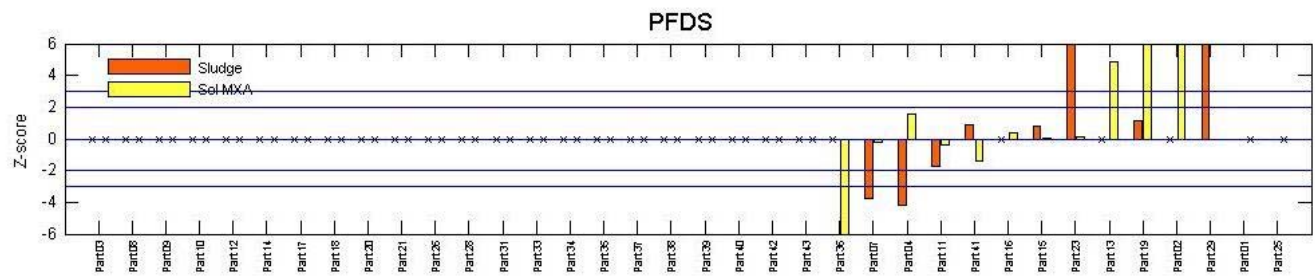


$Z \equiv 3$
 $Z \equiv -3$


 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$


 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$

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 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$


 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$

 $Z \approx 3$
 $Z \approx -3$



$$Z = 3$$

$$Z = -3$$