Clin. Lab. 2019;65:1-8

ORIGINAL ARTICLE

Interferents of Automated Reticulocyte Analysis Integrated with Relevant Clinical Cases

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SUMMARY

Background: **Reticulocyte count (RET) has been used for many years to estimate the erythropoietic activity of the bone marrow. Fully automated methods not only provide enhanced precision and accuracy, but also enable reliable measurements of mRNA content and cellular indices. However, problems still exist, such as interference. The aim of the present study was to investigate the interferents of Sysmex XN 9000 reticulocyte analysis and ensure the accuracy of the results.**
Methods: **We collected a total of 510 specimens from normal control patients and patients with various diseases including anemias, leukemias, infectious diseases, immune diseases, kidney disease, etc. Correlation of the agreement for reticulocytes between the new methylene blue (NMB) visual microscopy method and automated reticulocyte counting was evaluated by paired sample method according to the CLSI-ICSH document H44-A2-Methods for Reticulocyte Count. Blood smear microscopic examination was carried out on the disturbed samples, and the interferents were analyzed with the medical history, flagging algorithms, the warning information, and the microscopic examination.**
Results: **A total of 44 (8.6%) cases exhibited interference. The main interferents of spuriously high reticulocyte count were caused by parasites, such as malaria, as well as suspicious autofluorescence due to drugs, while the main interferents of spuriously low reticulocyte count were caused by RBC fragments.**
Conclusions: **Detection of potential interferences may be accomplished through alarm information and flagging algorithms incorporated into the instrument and by examination of a blood film to ensure absence of relevant interferences.**
(Clin. Lab. 2019;65:xx-xx. DOI: 10.7754/Clin.Lab.2019.181245)

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Manuscript accepted January 22, 2019

Supplementary Table

Table S1. Accuracy estimation: paired sample method [a].

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
0.1	0.001	0.999	0.00000025	0.00000003	0.00053	0.00	0.20
0.2	0.002	0.998	0.00000050	0.00000007	0.00075	0.05	0.35
0.3	0.003	0.997	0.00000075	0.00000010	0.00092	0.12	0.48
0.4	0.004	0.996	0.00000100	0.00000013	0.00106	0.19	0.61
0.5	0.005	0.995	0.00000124	0.00000017	0.00119	0.27	0.73
0.6	0.006	0.994	0.00000149	0.00000020	0.00130	0.35	0.85
0.7	0.007	0.993	0.00000174	0.00000023	0.00140	0.42	0.98
0.8	0.008	0.992	0.00000198	0.00000026	0.00150	0.51	1.09
0.9	0.009	0.991	0.00000223	0.00000030	0.00159	0.59	1.21
1.0	0.010	0.990	0.00000248	0.00000033	0.00167	0.67	1.33
1.1	0.011	0.989	0.00000272	0.00000036	0.00176	0.76	1.44
1.2	0.012	0.988	0.00000296	0.00000040	0.00183	0.84	1.56
1.3	0.013	0.987	0.00000321	0.00000043	0.00191	0.93	1.67
1.4	0.014	0.986	0.00000345	0.00000046	0.00198	1.01	1.79
1.5	0.015	0.985	0.00000369	0.00000049	0.00205	1.10	1.90
1.6	0.016	0.984	0.00000394	0.00000052	0.00211	1.19	2.01
1.7	0.017	0.983	0.00000418	0.00000056	0.00218	1.27	2.13
1.8	0.018	0.982	0.00000442	0.00000059	0.00224	1.36	2.24
1.9	0.019	0.981	0.00000466	0.00000062	0.00230	1.45	2.35
2.0	0.020	0.980	0.00000490	0.00000065	0.00236	1.54	2.46
2.1	0.021	0.979	0.00000514	0.00000069	0.00241	1.63	2.57
2.2	0.022	0.978	0.00000538	0.00000072	0.00247	1.72	2.68
2.3	0.023	0.977	0.00000562	0.00000075	0.00252	1.81	2.79
2.4	0.024	0.976	0.00000586	0.00000078	0.00258	1.90	2.90
2.5	0.025	0.975	0.00000609	0.00000081	0.00263	1.98	3.02
2.6	0.026	0.974	0.00000633	0.00000084	0.00268	2.07	3.13
2.7	0.027	0.973	0.00000657	0.00000088	0.00273	2.17	3.23
2.8	0.028	0.972	0.00000680	0.00000091	0.00278	2.26	3.34
2.9	0.029	0.971	0.00000704	0.00000094	0.00282	2.35	3.45
3.0	0.030	0.970	0.00000728	0.00000097	0.00287	2.44	3.56
3.1	0.031	0.969	0.00000751	0.00000100	0.00292	2.53	3.67
3.2	0.032	0.968	0.00000774	0.00000103	0.00296	2.62	3.78
3.3	0.033	0.967	0.00000798	0.00000106	0.00301	2.71	3.89
3.4	0.034	0.966	0.00000821	0.00000109	0.00305	2.80	4.00
3.5	0.035	0.965	0.00000844	0.00000113	0.00309	2.89	4.11
3.6	0.036	0.964	0.00000868	0.00000116	0.00314	2.99	4.21
3.7	0.037	0.963	0.00000891	0.00000119	0.00318	3.08	4.32
3.8	0.038	0.962	0.00000914	0.00000122	0.00322	3.17	4.43
3.9	0.039	0.961	0.00000937	0.00000125	0.00326	3.26	4.54
4.0	0.040	0.960	0.00000960	0.00000128	0.00330	3.35	4.65
4.1	0.041	0.959	0.00000983	0.00000131	0.00334	3.45	4.75

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
4.2	0.042	0.958	0.00001006	0.00000134	0.00338	3.54	4.86
4.3	0.043	0.957	0.00001029	0.00000137	0.00341	3.63	4.97
4.4	0.044	0.956	0.00001052	0.00000140	0.00345	3.72	5.08
4.5	0.045	0.955	0.00001074	0.00000143	0.00349	3.82	5.18
4.6	0.046	0.954	0.00001097	0.00000146	0.00353	3.91	5.29
4.7	0.047	0.953	0.00001120	0.00000149	0.00356	4.00	5.40
4.8	0.048	0.952	0.00001142	0.00000152	0.00360	4.09	5.51
4.9	0.049	0.951	0.00001165	0.00000155	0.00363	4.19	5.61
5.0	0.050	0.950	0.00001188	0.00000158	0.00367	4.28	5.72
5.1	0.051	0.949	0.00001210	0.00000161	0.00370	4.37	5.83
5.2	0.052	0.948	0.00001232	0.00000164	0.00374	4.47	5.93
5.3	0.053	0.947	0.00001255	0.00000167	0.00377	4.56	6.04
5.4	0.054	0.946	0.00001277	0.00000170	0.00380	4.65	6.15
5.5	0.055	0.945	0.00001299	0.00000173	0.00384	4.75	6.25
5.6	0.056	0.944	0.00001322	0.00000176	0.00387	4.84	6.36
5.7	0.057	0.943	0.00001344	0.00000179	0.00390	4.94	6.46
5.8	0.058	0.942	0.00001366	0.00000182	0.00393	5.03	6.57
5.9	0.059	0.941	0.00001388	0.00000185	0.00397	5.12	6.68
6.0	0.060	0.940	0.00001410	0.00000188	0.00400	5.22	6.78
6.1	0.061	0.939	0.00001432	0.00000191	0.00403	5.31	6.89
6.2	0.062	0.938	0.00001454	0.00000194	0.00406	5.40	7.00
6.3	0.063	0.937	0.00001476	0.00000197	0.00409	5.50	7.10
6.4	0.064	0.936	0.00001498	0.00000200	0.00412	5.59	7.21
6.5	0.065	0.935	0.00001519	0.00000203	0.00415	5.69	7.31
6.6	0.066	0.934	0.00001541	0.00000205	0.00418	5.78	7.42
6.7	0.067	0.933	0.00001563	0.00000208	0.00421	5.88	7.52
6.8	0.068	0.932	0.00001584	0.00000211	0.00424	5.97	7.63
6.9	0.069	0.931	0.00001606	0.00000214	0.00427	6.06	7.74
7.0	0.070	0.930	0.00001628	0.00000217	0.00429	6.16	7.84
7.1	0.071	0.929	0.00001649	0.00000220	0.00432	6.25	7.95
7.2	0.072	0.928	0.00001670	0.00000223	0.00435	6.35	8.05
7.3	0.073	0.927	0.00001692	0.00000226	0.00438	6.44	8.16
7.4	0.074	0.926	0.00001713	0.00000228	0.00441	6.54	8.26
7.5	0.075	0.925	0.00001734	0.00000231	0.00443	6.63	8.37
7.6	0.076	0.924	0.00001756	0.00000234	0.00446	6.73	8.47
7.7	0.077	0.923	0.00001777	0.00000237	0.00449	6.82	8.58
7.8	0.078	0.922	0.00001798	0.00000240	0.00451	6.92	8.68
7.9	0.079	0.921	0.00001819	0.00000243	0.00454	7.01	8.79
8.0	0.080	0.920	0.00001840	0.00000245	0.00457	7.10	8.90
8.1	0.081	0.919	0.00001861	0.00000248	0.00459	7.20	9.00
8.2	0.082	0.918	0.00001882	0.00000251	0.00462	7.29	9.11
8.3	0.083	0.917	0.00001903	0.00000254	0.00464	7.39	9.21
8.4	0.084	0.916	0.00001924	0.00000256	0.00467	7.48	9.32

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
8.5	0.085	0.915	0.00001944	0.00000259	0.00469	7.58	9.42
8.6	0.086	0.914	0.00001965	0.00000262	0.00472	7.68	9.52
8.7	0.087	0.913	0.00001986	0.00000265	0.00474	7.77	9.63
8.8	0.088	0.912	0.00002006	0.00000268	0.00477	7.87	9.73
8.9	0.089	0.911	0.00002027	0.00000270	0.00479	7.96	9.84
9.0	0.090	0.910	0.00002048	0.00000273	0.00482	8.06	9.94
9.1	0.091	0.909	0.00002068	0.00000276	0.00484	8.15	10.05
9.2	0.092	0.908	0.00002088	0.00000278	0.00487	8.25	10.15
9.3	0.093	0.907	0.00002109	0.00000281	0.00489	8.34	10.26
9.4	0.094	0.906	0.00002129	0.00000284	0.00491	8.44	10.36
9.5	0.095	0.905	0.00002149	0.00000287	0.00494	8.53	10.47
9.6	0.096	0.904	0.00002170	0.00000289	0.00496	8.63	10.57
9.7	0.097	0.903	0.00002190	0.00000292	0.00498	8.72	10.68
9.8	0.098	0.902	0.00002210	0.00000295	0.00500	8.82	10.78
9.9	0.099	0.901	0.00002230	0.00000297	0.00503	8.91	10.89
10.0	0.100	0.900	0.00002250	0.00000300	0.00505	9.01	10.99
10.1	0.101	0.899	0.00002270	0.00000303	0.00507	9.11	11.09
10.2	0.102	0.898	0.00002290	0.00000305	0.00509	9.20	11.20
10.3	0.103	0.897	0.00002310	0.00000308	0.00512	9.30	11.30
10.4	0.104	0.896	0.00002330	0.00000311	0.00514	9.39	11.41
10.5	0.105	0.895	0.00002349	0.00000313	0.00516	9.49	11.51
10.6	0.106	0.894	0.00002369	0.00000316	0.00518	9.58	11.62
10.7	0.107	0.893	0.00002389	0.00000319	0.00520	9.68	11.72
10.8	0.108	0.892	0.00002408	0.00000321	0.00522	9.78	11.82
10.9	0.109	0.891	0.00002428	0.00000324	0.00525	9.87	11.93
11.0	0.110	0.890	0.00002448	0.00000326	0.00527	9.97	12.03
11.1	0.111	0.889	0.00002467	0.00000329	0.00529	10.06	12.14
11.2	0.112	0.888	0.00002486	0.00000332	0.00531	10.16	12.24
11.3	0.113	0.887	0.00002506	0.00000334	0.00533	10.26	12.34
11.4	0.114	0.886	0.00002525	0.00000337	0.00535	10.35	12.45
11.5	0.115	0.885	0.00002544	0.00000339	0.00537	10.45	12.55
11.6	0.116	0.884	0.00002564	0.00000342	0.00539	10.54	12.66
11.7	0.117	0.883	0.00002583	0.00000344	0.00541	10.64	12.76
11.8	0.118	0.882	0.00002602	0.00000347	0.00543	10.74	12.86
11.9	0.119	0.881	0.00002621	0.00000349	0.00545	10.83	12.97
12.0	0.120	0.880	0.00002640	0.00000352	0.00547	10.93	13.07
12.1	0.121	0.879	0.00002659	0.00000355	0.00549	11.02	13.18
12.2	0.122	0.878	0.00002678	0.00000357	0.00551	11.12	13.28
12.3	0.123	0.877	0.00002697	0.00000360	0.00553	11.22	13.38
12.4	0.124	0.876	0.00002716	0.00000362	0.00555	11.31	13.49
12.5	0.125	0.875	0.00002734	0.00000365	0.00557	11.41	13.59
12.6	0.126	0.874	0.00002753	0.00000367	0.00559	11.51	13.69
12.7	0.127	0.873	0.00002772	0.00000370	0.00560	11.60	13.80
12.8	0.128	0.872	0.00002790	0.00000372	0.00562	11.70	13.90

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
12.9	0.129	0.871	0.00002809	0.00000375	0.00564	11.79	14.01
13.0	0.130	0.870	0.00002828	0.00000377	0.00566	11.89	14.11
13.1	0.131	0.869	0.00002846	0.00000379	0.00568	11.99	14.21
13.2	0.132	0.868	0.00002864	0.00000382	0.00570	12.08	14.32
13.3	0.133	0.867	0.00002883	0.00000384	0.00572	12.18	14.42
13.4	0.134	0.866	0.00002901	0.00000387	0.00573	12.28	14.52
13.5	0.135	0.865	0.00002919	0.00000389	0.00575	12.37	14.63
13.6	0.136	0.864	0.00002938	0.00000392	0.00577	12.47	14.73
13.7	0.137	0.863	0.00002956	0.00000394	0.00579	12.57	14.83
13.8	0.138	0.862	0.00002974	0.00000397	0.00581	12.66	14.94
13.9	0.139	0.861	0.00002992	0.00000399	0.00582	12.76	15.04
14.0	0.140	0.860	0.00003010	0.00000401	0.00584	12.86	15.14
14.1	0.141	0.859	0.00003028	0.00000404	0.00586	12.95	15.25
14.2	0.142	0.858	0.00003046	0.00000406	0.00588	13.05	15.35
14.3	0.143	0.857	0.00003064	0.00000409	0.00589	13.15	15.45
14.4	0.144	0.856	0.00003082	0.00000411	0.00591	13.24	15.56
14.5	0.145	0.855	0.00003099	0.00000413	0.00593	13.34	15.66
14.6	0.146	0.854	0.00003117	0.00000416	0.00594	13.44	15.76
14.7	0.147	0.853	0.00003135	0.00000418	0.00596	13.53	15.87
14.8	0.148	0.852	0.00003152	0.00000420	0.00598	13.63	15.97
14.9	0.149	0.851	0.00003170	0.00000423	0.00599	13.73	16.07
15.0	0.150	0.850	0.00003188	0.00000425	0.00601	13.82	16.18
15.1	0.151	0.849	0.00003205	0.00000427	0.00603	13.92	16.28
15.2	0.152	0.848	0.00003222	0.00000430	0.00604	14.02	16.38
15.3	0.153	0.847	0.00003240	0.00000432	0.00606	14.11	16.49
15.4	0.154	0.846	0.00003257	0.00000434	0.00608	14.21	16.59
15.5	0.155	0.845	0.00003274	0.00000437	0.00609	14.31	16.69
15.6	0.156	0.844	0.00003292	0.00000439	0.00611	14.40	16.80
15.7	0.157	0.843	0.00003309	0.00000441	0.00612	14.50	16.90
15.8	0.158	0.842	0.00003326	0.00000443	0.00614	14.60	17.00
15.9	0.159	0.841	0.00003343	0.00000446	0.00616	14.69	17.11
16.0	0.160	0.840	0.00003360	0.00000448	0.00617	14.79	17.21
16.1	0.161	0.839	0.00003377	0.00000450	0.00619	14.89	17.31
16.2	0.162	0.838	0.00003394	0.00000453	0.00620	14.98	17.42
16.3	0.163	0.837	0.00003411	0.00000455	0.00622	15.08	17.52
16.4	0.164	0.836	0.00003428	0.00000457	0.00623	15.18	17.62
16.5	0.165	0.835	0.00003444	0.00000459	0.00625	15.28	17.72
16.6	0.166	0.834	0.00003461	0.00000461	0.00626	15.37	17.83
16.7	0.167	0.833	0.00003478	0.00000464	0.00628	15.47	17.93
16.8	0.168	0.832	0.00003494	0.00000466	0.00629	15.57	18.03
16.9	0.169	0.831	0.00003511	0.00000468	0.00631	15.66	18.14
17.0	0.170	0.830	0.00003528	0.00000470	0.00632	15.76	18.24
17.1	0.171	0.829	0.00003544	0.00000473	0.00634	15.86	18.34
17.2	0.172	0.828	0.00003560	0.00000475	0.00635	15.95	18.45

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
17.3	0.173	0.827	0.00003577	0.00000477	0.00637	16.05	18.55
17.4	0.174	0.826	0.00003593	0.00000479	0.00638	16.15	18.65
17.5	0.175	0.825	0.00003609	0.00000481	0.00640	16.25	18.75
17.6	0.176	0.824	0.00003626	0.00000483	0.00641	16.34	18.86
17.7	0.177	0.823	0.00003642	0.00000486	0.00642	16.44	18.96
17.8	0.178	0.822	0.00003658	0.00000488	0.00644	16.54	19.06
17.9	0.179	0.821	0.00003674	0.00000490	0.00645	16.64	19.16
18.0	0.180	0.820	0.00003690	0.00000492	0.00647	16.73	19.27
18.1	0.181	0.819	0.00003706	0.00000494	0.00648	16.83	19.37
18.2	0.182	0.818	0.00003722	0.00000496	0.00649	16.93	19.47
18.3	0.183	0.817	0.00003738	0.00000498	0.00651	17.02	19.58
18.4	0.184	0.816	0.00003754	0.00000500	0.00652	17.12	19.68
18.5	0.185	0.815	0.00003769	0.00000503	0.00654	17.22	19.78
18.6	0.186	0.814	0.00003785	0.00000505	0.00655	17.32	19.88
18.7	0.187	0.813	0.00003801	0.00000507	0.00656	17.41	19.99
18.8	0.188	0.812	0.00003816	0.00000509	0.00658	17.51	20.09
18.9	0.189	0.811	0.00003832	0.00000511	0.00659	17.61	20.19
19.0	0.190	0.810	0.00003848	0.00000513	0.00660	17.71	20.29
19.1	0.191	0.809	0.00003863	0.00000515	0.00662	17.80	20.40
19.2	0.192	0.808	0.00003878	0.00000517	0.00663	17.90	20.50
19.3	0.193	0.807	0.00003894	0.00000519	0.00664	18.00	20.60
19.4	0.194	0.806	0.00003909	0.00000521	0.00666	18.10	20.70
19.5	0.195	0.805	0.00003924	0.00000523	0.00667	18.19	20.81
19.6	0.196	0.804	0.00003940	0.00000525	0.00668	18.29	20.91
19.7	0.197	0.803	0.00003955	0.00000527	0.00669	18.39	21.01
19.8	0.198	0.802	0.00003970	0.00000529	0.00671	18.49	21.11
19.9	0.199	0.801	0.00003985	0.00000531	0.00672	18.58	21.22
20.0	0.200	0.800	0.00004000	0.00000533	0.00673	18.68	21.32
20.1	0.201	0.799	0.00004015	0.00000535	0.00675	18.78	21.42
20.2	0.202	0.798	0.00004030	0.00000537	0.00676	18.88	21.52
20.3	0.203	0.797	0.00004045	0.00000539	0.00677	18.97	21.63
20.4	0.204	0.796	0.00004060	0.00000541	0.00678	19.07	21.73
20.5	0.205	0.795	0.00004074	0.00000543	0.00680	19.17	21.83
20.6	0.206	0.794	0.00004089	0.00000545	0.00681	19.27	21.93
20.7	0.207	0.793	0.00004104	0.00000547	0.00682	19.36	22.04
20.8	0.208	0.792	0.00004118	0.00000549	0.00683	19.46	22.14
20.9	0.209	0.791	0.00004133	0.00000551	0.00684	19.56	22.24
21.0	0.210	0.790	0.00004148	0.00000553	0.00686	19.66	22.34
21.1	0.211	0.789	0.00004162	0.00000555	0.00687	19.75	22.45
21.2	0.212	0.788	0.00004176	0.00000557	0.00688	19.85	22.55
21.3	0.213	0.787	0.00004191	0.00000559	0.00689	19.95	22.65
21.4	0.214	0.786	0.00004205	0.00000561	0.00690	20.05	22.75
21.5	0.215	0.785	0.00004219	0.00000563	0.00692	20.14	22.86
21.6	0.216	0.784	0.00004234	0.00000564	0.00693	20.24	22.96

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
21.7	0.217	0.783	0.00004248	0.00000566	0.00694	20.34	23.06
21.8	0.218	0.782	0.00004262	0.00000568	0.00695	20.44	23.16
21.9	0.219	0.781	0.00004276	0.00000570	0.00696	20.54	23.26
22.0	0.220	0.780	0.00004290	0.00000572	0.00697	20.63	23.37
22.1	0.221	0.779	0.00004304	0.00000574	0.00698	20.73	23.47
22.2	0.222	0.778	0.00004318	0.00000576	0.00700	20.83	23.57
22.3	0.223	0.777	0.00004332	0.00000578	0.00701	20.93	23.67
22.4	0.224	0.776	0.00004346	0.00000579	0.00702	21.02	23.78
22.5	0.225	0.775	0.00004359	0.00000581	0.00703	21.12	23.88
22.6	0.226	0.774	0.00004373	0.00000583	0.00704	21.22	23.98
22.7	0.227	0.773	0.00004387	0.00000585	0.00705	21.32	24.08
22.8	0.228	0.772	0.00004400	0.00000587	0.00706	21.42	24.18
22.9	0.229	0.771	0.00004414	0.00000589	0.00707	21.51	24.29
23.0	0.230	0.770	0.00004428	0.00000590	0.00708	21.61	24.39
23.1	0.231	0.769	0.00004441	0.00000592	0.00709	21.71	24.49
23.2	0.232	0.768	0.00004454	0.00000594	0.00711	21.81	24.59
23.3	0.233	0.767	0.00004468	0.00000596	0.00712	21.91	24.69
23.4	0.234	0.766	0.00004481	0.00000597	0.00713	22.00	24.80
23.5	0.235	0.765	0.00004494	0.00000599	0.00714	22.10	24.90
23.6	0.236	0.764	0.00004508	0.00000601	0.00715	22.20	25.00
23.7	0.237	0.763	0.00004521	0.00000603	0.00716	22.30	25.10
23.8	0.238	0.762	0.00004534	0.00000605	0.00717	22.40	25.20
23.9	0.239	0.761	0.00004547	0.00000606	0.00718	22.49	25.31
24.0	0.240	0.760	0.00004560	0.00000608	0.00719	22.59	25.41
24.1	0.241	0.759	0.00004573	0.00000610	0.00720	22.69	25.51
24.2	0.242	0.758	0.00004586	0.00000611	0.00721	22.79	25.61
24.3	0.243	0.757	0.00004599	0.00000613	0.00722	22.89	25.71
24.4	0.244	0.756	0.00004612	0.00000615	0.00723	22.98	25.82
24.5	0.245	0.755	0.00004624	0.00000617	0.00724	23.08	25.92
24.6	0.246	0.754	0.00004637	0.00000618	0.00725	23.18	26.02
24.7	0.247	0.753	0.00004650	0.00000620	0.00726	23.28	26.12
24.8	0.248	0.752	0.00004662	0.00000622	0.00727	23.38	26.22
24.9	0.249	0.751	0.00004675	0.00000623	0.00728	23.47	26.33
25.0	0.250	0.750	0.00004688	0.00000625	0.00729	23.57	26.43
25.1	0.251	0.749	0.00004700	0.00000627	0.00730	23.67	26.53
25.2	0.252	0.748	0.00004712	0.00000628	0.00731	23.77	26.63
25.3	0.253	0.747	0.00004725	0.00000630	0.00732	23.87	26.73
25.4	0.254	0.746	0.00004737	0.00000632	0.00733	23.96	26.84
25.5	0.255	0.745	0.00004749	0.00000633	0.00734	24.06	26.94
25.6	0.256	0.744	0.00004762	0.00000635	0.00735	24.16	27.04
25.7	0.257	0.743	0.00004774	0.00000637	0.00736	24.26	27.14
25.8	0.258	0.742	0.00004786	0.00000638	0.00736	24.36	27.24
25.9	0.259	0.741	0.00004798	0.00000640	0.00737	24.45	27.35
26.0	0.260	0.740	0.00004810	0.00000641	0.00738	24.55	27.45

Table S1. Accuracy estimation: paired sample method [a] (continued).

Retic %	p [b]	q	Variance nR [c] = 4,000	Variance nFC [d] = 30,000	Sep [e]	Lower Limit (%)	Upper Limit (%)
26.1	0.261	0.739	0.00004822	0.00000643	0.00739	24.65	27.55
26.2	0.262	0.738	0.00004834	0.00000645	0.00740	24.75	27.65
26.3	0.263	0.737	0.00004846	0.00000646	0.00741	24.85	27.75
26.4	0.264	0.736	0.00004858	0.00000648	0.00742	24.95	27.85
26.5	0.265	0.735	0.00004869	0.00000649	0.00743	25.04	27.96
26.6	0.266	0.734	0.00004881	0.00000651	0.00744	25.14	28.06
26.7	0.267	0.733	0.00004893	0.00000652	0.00745	25.24	28.16
26.8	0.268	0.732	0.00004904	0.00000654	0.00746	25.34	28.26
26.9	0.269	0.731	0.00004916	0.00000655	0.00746	25.44	28.36
27.0	0.270	0.730	0.00004928	0.00000657	0.00747	25.54	28.46
27.1	0.271	0.729	0.00004939	0.00000659	0.00748	25.63	28.57
27.2	0.272	0.728	0.00004950	0.00000660	0.00749	25.73	28.67
27.3	0.273	0.727	0.00004962	0.00000662	0.00750	25.83	28.77
27.4	0.274	0.726	0.00004973	0.00000663	0.00751	25.93	28.87
27.5	0.275	0.725	0.00004984	0.00000665	0.00752	26.03	28.97
27.6	0.276	0.724	0.00004996	0.00000666	0.00752	26.13	29.07
27.7	0.277	0.723	0.00005007	0.00000668	0.00753	26.22	29.18
27.8	0.278	0.722	0.00005018	0.00000669	0.00754	26.32	29.28
27.9	0.279	0.721	0.00005029	0.00000671	0.00755	26.42	29.38
28.0	0.280	0.720	0.00005040	0.00000672	0.00756	26.52	29.48
28.1	0.281	0.719	0.00005051	0.00000673	0.00757	26.62	29.58
28.2	0.282	0.718	0.00005062	0.00000675	0.00757	26.72	29.68
28.3	0.283	0.717	0.00005073	0.00000676	0.00758	26.81	29.79
28.4	0.284	0.716	0.00005084	0.00000678	0.00759	26.91	29.89
28.5	0.285	0.715	0.00005094	0.00000679	0.00760	27.01	29.99
28.6	0.286	0.714	0.00005105	0.00000681	0.00761	27.11	30.09
28.7	0.287	0.713	0.00005116	0.00000682	0.00761	27.21	30.19
28.8	0.288	0.712	0.00005126	0.00000684	0.00762	27.31	30.29
28.9	0.289	0.711	0.00005137	0.00000685	0.00763	27.40	30.40
29.0	0.290	0.710	0.00005148	0.00000686	0.00764	27.50	30.50
29.1	0.291	0.709	0.00005158	0.00000688	0.00765	27.60	30.60
29.2	0.292	0.708	0.00005168	0.00000689	0.00765	27.70	30.70
29.3	0.293	0.707	0.00005179	0.00000691	0.00766	27.80	30.80
29.4	0.294	0.706	0.00005189	0.00000692	0.00767	27.90	30.90
29.5	0.295	0.705	0.00005199	0.00000693	0.00768	28.00	31.00
29.6	0.296	0.704	0.00005210	0.00000695	0.00768	28.09	31.11
29.7	0.297	0.703	0.00005220	0.00000696	0.00769	28.19	31.21
29.8	0.298	0.702	0.00005230	0.00000697	0.00770	28.29	31.31
29.9	0.299	0.701	0.00005240	0.00000699	0.00771	28.39	31.41
30.0	0.300	0.700	0.00005250	0.00000700	0.00771	28.49	31.51

[a] - Lower limit values that are negative can be replaced with zero. [b] - *pR* and *pFC* are reticulocyte percents, *qR* = (1 - *pR*) and *qFC* = (1 - *pFC*). [c] - *VarR* = variance of the reference method. *nR* and *nFC* are the total number of red cells and reticulocytes counted. [d] - *VarFC* = variance of the flow cytometer. [e] - *SEp* represents the combined standard error of *test* and *reference,* $SEp = \sqrt{Var_R + Var_{FC}}$ **.**