

Cell-Free DNA Storage Tube

Technical Support

Jiangsu CoWin Biotech. Co., Ltd.

CoWin Products

Cat. No.	Product name	Volume	Specification
 CW3174M	Cell-Free DNA Storage Tube (10 mL)	Glass, 10 mL	50 tubes
 CW2815M	cfDNA Storage Tube (PET, 10 mL)	PET, 10 mL	50 tubes
 CWX006M	Cell-Free DNA Storage Tube	Glass, 10 mL	50 tubes
 CWX008M	Cell-Free DNA Storage Tube	PET, 10 mL	50 tubes
CW2817M	Cell-Free DNA Storage Tube (5 mL)	Glass, 5 mL	50 tubes
CW2814M	cfDNA Storage Tube (PET, 5 mL)	PET, 5 mL	50 tubes
CWX005M	Cell-Free DNA Storage Tube	Glass, 5 mL	50 tubes
CWX007M	Cell-Free DNA Storage Tube	PET, 5 mL	50 tubes

Sample display



Product characteristics

Product characteristics



- cfDNA storage tube can store cfDNA at 4-37°C for up to 14 days.
- **Fix red blood cells** to prevent broken red blood cells from releasing nucleases or other pollutants.
- **Fix white blood cells** and prevent them from releasing genomic DNA into plasma.
- **Protection of free DNA from degradation by nuclease.**
- Glass, PET two kinds of materials, 5 mL ,10 mL two kinds of specification.

Application

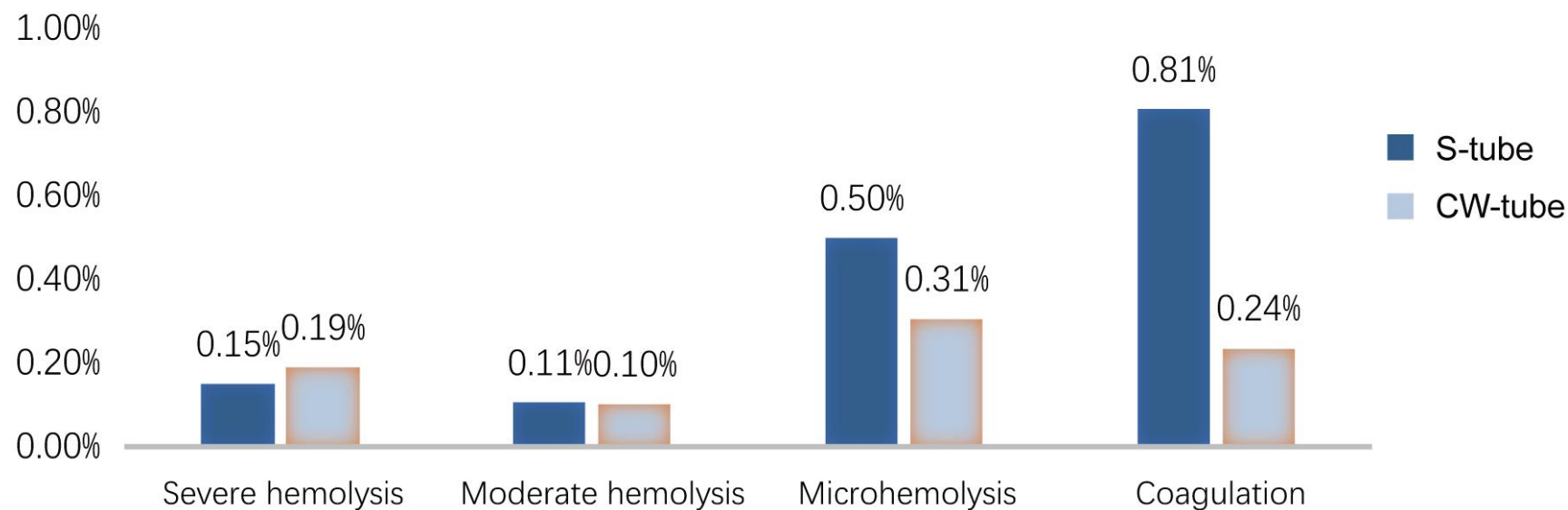
- NIPT, Tumor Screening, Pathogenic Microbial Detection, Reproductive Health, etc.

Test Data

- Comparison of hemolysis performance
- White blood cell fixation test
- Nuclease inhibition test
- Experimental case-NIPT
- Library construction and sequencing
- Test Data-between CW tube and EDTA tube

1. Comparison of hemolysis performance

➡ The blood of the same person was stored in **S-tube** and **CW-tube** respectively. A total of about 7,000 samples were tested and actually transported to the customer. The data given by the customer is shown in the figure below.



■ **Conclusion:** In controlling hemolysis, **CW-tubes** and **S-tubes** have comparable performance in controlling hemolysis.

2. White blood cell fixation test

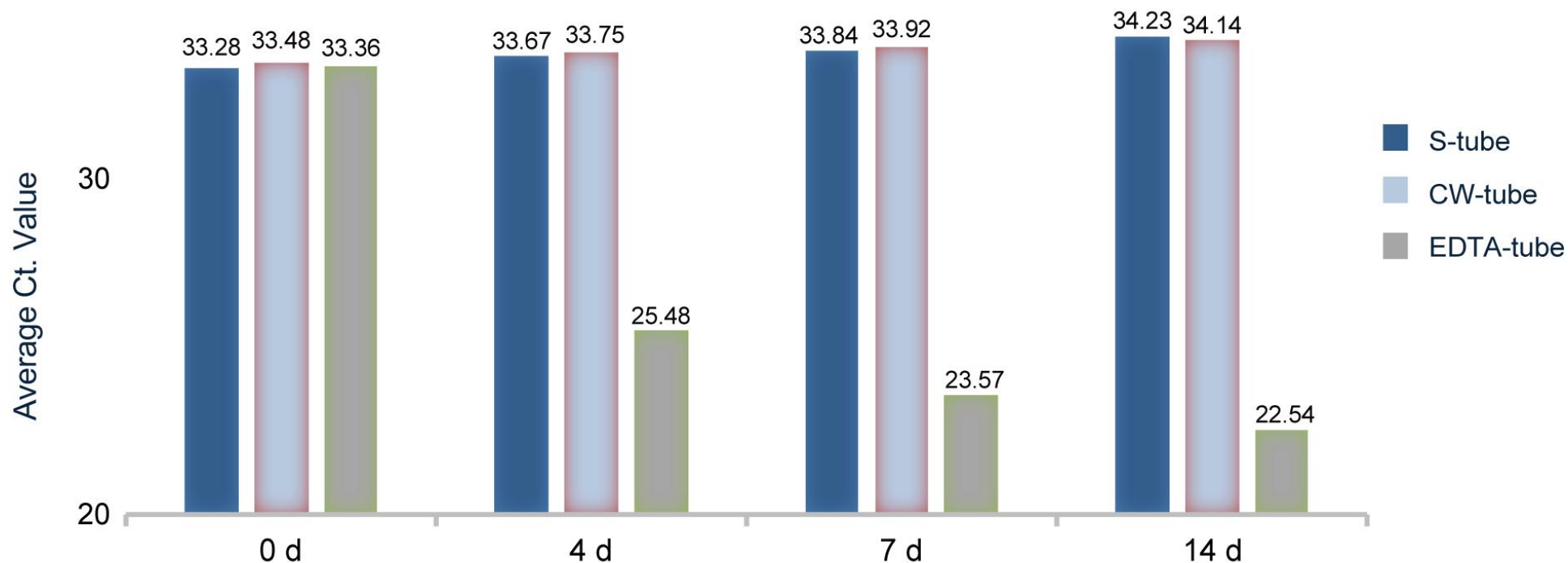
- Adult blood was preserved with EDTA tube, CW-tube and S-tube, respectively, and stored at room temperature for 14 days. DNA was extracted and the content of internal reference genes was detected by fluorescence quantitative analysis.

Amount of cfDNA extracted in 200 µl of plasma (ng)

	EDTA-0d	CW-0d	S-0d	EDTA-4d	CW-4d	S-4d
Mean(ng)	1.28	1.267	1.265	846	1.257	1.311
Standard Deviation	0.13	0.13	0.12	96.17	0.15	0.14
	EDTA-7d	CW-7d	S-7d	EDTA-14d	CW-14d	S-14d
Mean(ng)	1538	1.586	1.611	2685	2.65	2.77
Standard Deviation	189.57	0.16	0.15	424.26	0.17	0.17

2. White blood cell fixation test

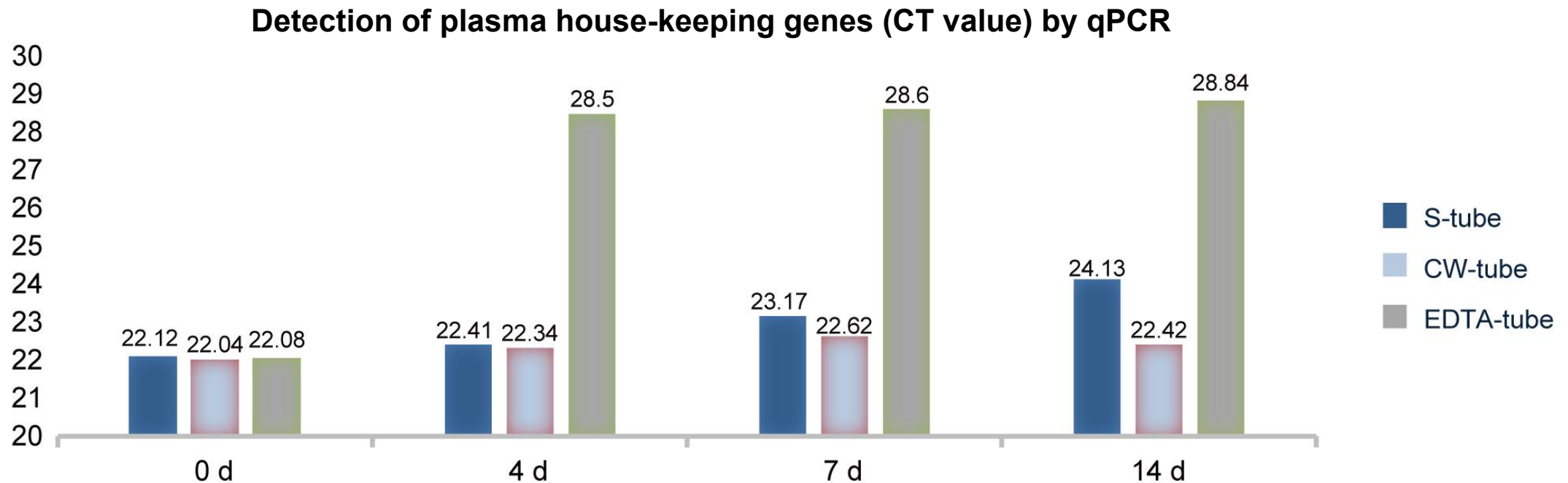
Detection of plasma house-keeping genes (CT value) by qPCR



- **Conclusion:** Compared with fresh blood, the rupture of blood cells in EDTA tube is serious, the amount of nucleic acid extraction is significantly increased, and the CT value of house-keeping gene is significantly decreased. **Both CW-tube and S-tube can prevent cell rupture, fix white blood cells effectively and prevent the release of genomic DNA.**

3. Nuclease inhibition test

➡ Adult blood was preserved with EDTA, CW-tube and S-tube respectively. Non-human house-keeping genes were added to the blood after extraction, and placed at room temperature for 14 d. DNA was extracted and the content of internal reference genes was detected by qPCR.



■ **Conclusion:** In terms of nuclease inhibition ability, **CW-tube and S-tube have the same ability to inhibit nuclease in the first 7 d. At 14 d, the nuclease inhibition ability of CW-tube is better than that of S-tube.**

4. Experimental case-NIPT

No.	Sample number	Age	Gestational weeks	Tube	Whether or not hemolysis	Library concentration (nM/L)	Whether qualified or not
Group 1	CW907699	24	14 w	S	No	34.45	Yes
	7699T	24	14 w	CW	No	37.98	Yes
Group 2	CW907700	29	18 w+6	S	No	74.98	Yes
	7700T	29	18 w+6	CW	No	73.31	Yes
Group 3	CW907814	29	19 w+1	S	No	70.97	Yes
	7814T	29	19 w+1	CW	No	77.85	Yes
Group 4	CW907887	33	15 w+1	S	No	49.88	Yes
	7887T	33	15 w+1	CW	No	42.73	Yes
Group 5	CW907888	35	13 w	S	No	82.82	Yes
	7888T	35	13 w	CW	No	88.55	Yes
Group 6	CW909153B	41	17 w+1	S	No	33.54	Yes
	153BT	41	17 w+1	CW	No	26.54	Yes
Group 7	CW909804	27	16 w+3	S	No	63.69	Yes
	9804T	27	16 w+3	CW	No	72.48	Yes
Group 8	CW909940	30	17 w+2	S	No	69.46	Yes
	9940T	30	17 w+2	CW	No	62.05	Yes
Group 9	CW910278	33	13 w	S	No	150.49	Yes
	0278T	33	13 w	CW	No	141.11	Yes
Group 10	CW910317	33	14 w+2	S	No	37.01	Yes
	0317T	33	14 w+2	CW	No	37.47	Yes

4. Experimental case-NIPT

No.	Sample number	Tube	ReadLen	Unique Reads	GC content	Fetal concentration	T21	T18	T13	Result
Group 1	CW907699	S	149	3,576,732	40.3	12.4	-0.94	1.556	0.007	Negative
	7699T	CW	146	3,472,048	40.9	14.4	2.448	0.02	-0.015	Negative
Group 2	CW907700	S	151	3,829,622	40.5	10.8	-0.174	1.234	-0.872	Negative
	7700T	CW	149	3,623,378	40.7	10.7	-1.384	-0.536	0.269	Negative
Group 3	CW907814	S	147	3,427,413	40.9	22.5	-1.14	-0.605	0.527	Negative
	7814T	CW	145	3,095,142	41.2	18.9	0.396	-0.93	0.55	Negative
Group 4	CW907887	S	147	3,804,843	40.9	17.8	1.186	-1.129	0.229	Negative
	7887T	CW	146	5,466,496	40.9	17.5	1.991	-0.786	0.167	Negative
Group 5	CW907888	S	146	3,702,805	42	15.1	0.346	-0.136	-1.587	Negative
	7888T	CW	148	3,947,737	42.3	13.3	-1.456	-1.292	-0.309	Negative
Group 6	CW909153B	S	136	3,289,167	40.2	13.591	-0.934	1.351	-0.065	Negative
	153BT	CW	138	2,918,777	41	17.294	0.544	1.119	0.259	Negative
Group 7	CW909804	S	145	3,216,895	41.9	25.8	1.433	-2.492	-0.684	Negative
	9804T	CW	140	3,421,563	42.3	27.6	0.151	-0.318	-0.461	Negative
Group 8	CW909940	S	139	3,508,105	40.6	20.2	-0.39	-0.339	0.994	Negative
	9940T	CW	138	3,972,159	40.6	19.9	-0.234	-1.112	-0.612	Negative
Group 9	CW910278	S	149	3,059,897	40.4	13	1.708	0.342	1.875	Negative
	0278T	CW	134	2,955,790	41	18.5	-0.616	-0.498	1.627	Negative
Group 10	CW910317	S	134	3,758,557	40.5	18.3	-0.51	0.848	-1.103	Negative
	0317T	CW	133	3,453,464	40.8	24.8	-2.122	-0.22	0.148	Negative

5. Library construction and sequencing

Library Construction and sequencing comparison		
Company	CW	S
Library construction success rate	99.90%	99.30%
Final success rate	99.60%	99.00%

- **Conclusion:** The **library construction success rate of CW-tube** is slightly better than that of S-tube, and the **success rate of sequencing** is that the ability of cfDNA storage tube is similar to that of S-tube.

6. Test Data-between CW tube and EDTA tube

■ Human blood was collected by CW tube and EDTA tube and placed at 37°C.

Determination of Nucleic Acid concentration by Qubit (ng/μL)

	Sample	0 d	1 d	3 d	4 d
CW tube	A	0.0460	0.0344	0.0652	0.0672
	B	0.0492	0.0332	0.0640	0.0712
EDTA tube	A	0.0360	2.4600	High	High
	B	0.0544	4.4000	High	High

■ **Conclusion:** With the extension of sample storage time, **the nucleic acid storage performance of CW tube is significantly better than that of EDTA tube.**

6. Test Data-between CW tube and EDTA tube

■ Human blood was collected by CW tube and EDTA tube and placed at 37°C.

Detection of plasma house-keeping genes (CT value) by qPCR

Short fragment									
	Sample	0 d		1 d		3 d		4 d	
CW tube	A	20.5	20.47	21.24	21.235	20.36	20.295	20.32	20.275
		20.44		21.23		20.23		20.23	
	B	20.82	20.8	21.12	21.105	20.95	20.94	20.85	20.845
		20.78		21.09		20.93		20.84	
EDTA tube	A	20.58	20.55	13.58	13.575	8.14	8.115	7.01	7.04
		20.52		13.57		8.09		7.07	
	B	20.45	20.485	12.6	12.53	8.98	8.875	7.77	7.74
		20.52		12.46		8.77		7.71	

■ **Conclusion:** As the storage time of samples increases, the short fragment nucleic acid storage performance of CW tube is significantly better than that of EDTA tube.

6. Test Data-between CW tube and EDTA tube

■ Human blood was collected by CW tube and EDTA tube and placed at 37°C.

Detection of plasma house-keeping genes (CT value) by qPCR

Long fragment									
	Sample	0 d		1d		3 d		4 d	
CW tube	A	21.73	21.755	21.28	21.56	21.36	21.4	21.22	21.235
		21.78		21.84		21.44		21.25	
	B	23.22	23.195	23.64	23.62	22.95	23.015	22.43	22.425
		23.17		23.6		23.08		22.42	
EDTA tube	A	22.95	22.855	13.14	13.08	7.65	7.71	7.29	7.125
		22.76		13.02		7.77		6.96	
	B	22.9	22.89	12.29	12.215	8.41	8.43	7.38	7.47
		22.88		12.14		8.45		7.56	

■ **Conclusion:** As the storage time of samples increases, the long fragment nucleic acid storage performance of CW tube is significantly better than that of EDTA tube.

THANK YOU !



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