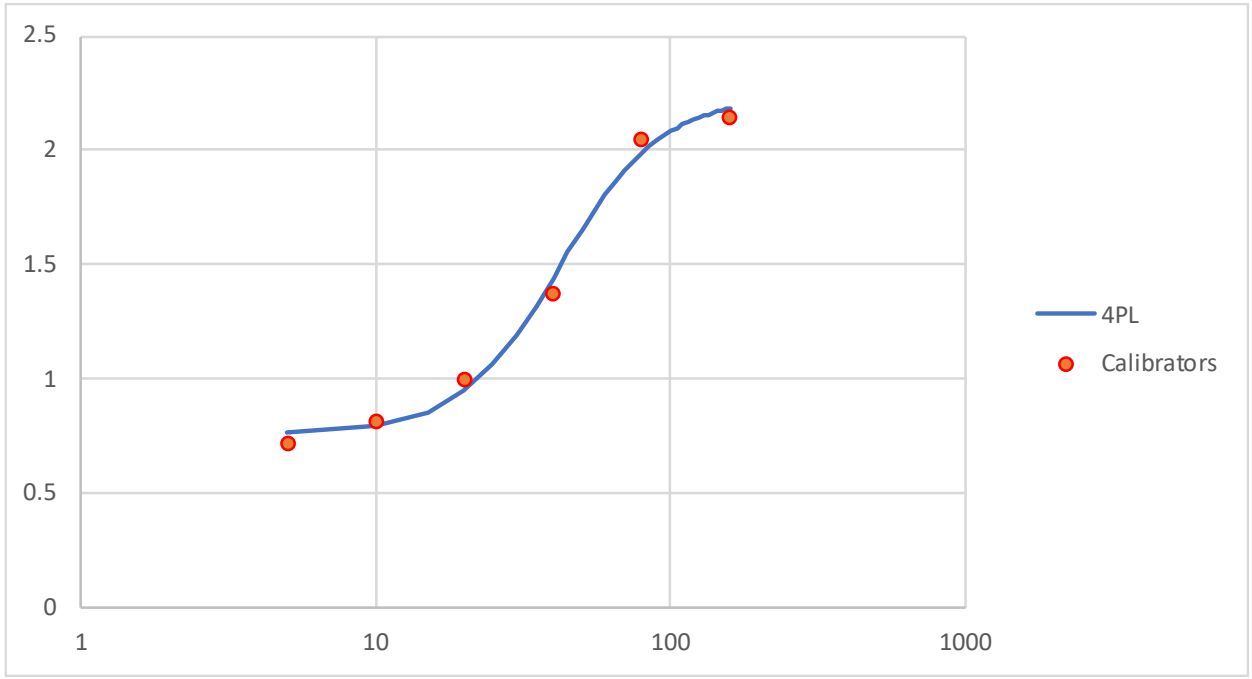
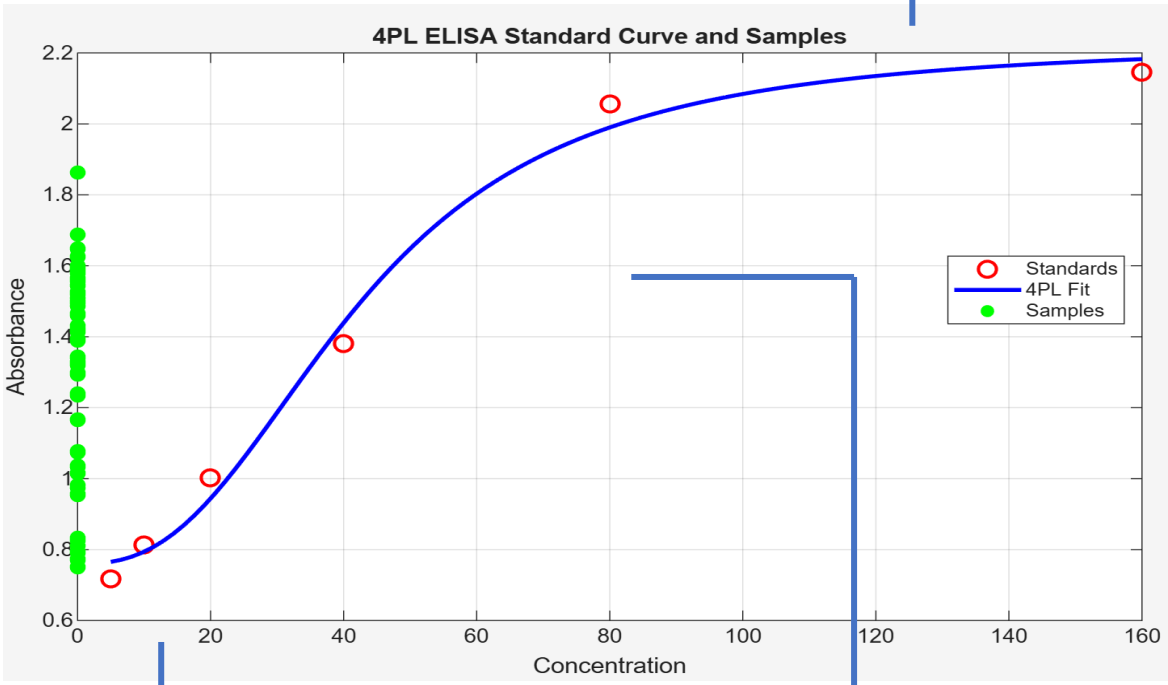
Standard Curve Comparison

- Pre-calculated Excel/online 4PL curve vs MATLAB-fitted 4PL curve
- Both curves are similar, indicating MATLAB implementation accurately reproduces the published curve



Upper plateau:
very high concentrations, detector saturation



Lower plateau:
very low concentrations, absorbance close to blank

Mid-Linear Region:
Accurate and Reliable Interpolation

Figure 1: Comparison of 4-parameter logistic (4PL) standard curves for the same ELISA dataset. Both curves are nearly identical MyAssaysLtd, 2021.

Sample Concentration Validation

- Concentrations derived in MATLAB match those in Excel
- MATLAB calculates the exact lowest value (highlighted in dashed blue box)

Concentration (pg/mL)											
Y value is <	Y value is <	35.18508	35.14584	38.14625	37.94198	10.29125	9.591552	46.55005	46.74961	31.85689	32.04864
11.02869	12.82461	45.42369	45.32737	21.74225	21.35345	23.30676	23.17932	13.52945	13.37711	45.2313	45.32737
25.08758	20.08095	43.54234	43.58828	25.78552	25.63709	41.09069	41.13406	Y value is <	Y value is <	23.93714	24.10346
37.61656	37.49498	34.13112	34.32549	50.05645	49.94625	44.75462	44.70728	38.92919	39.22046	39.09544	39.13708
94.31078	91.22834	40.87447	41.04737	46.69961	46.30218	39.34578	39.68146	42.09888	42.4104	39.22046	39.30398
125.9991	125.3807	47.15214	47.4061	12.98572	11.79324	36.09257	35.97362	48.70497	48.86425	52.28512	52.22595
Y value is <	Y value is <	35.53901	35.38153	43.08581	42.72423	29.21194	29.28885	45.71417	45.61709	46.84981	46.59984
12.57765	12.57765	6.127931	7.195115	65.03809	65.03809	20.46039	20.69432	43.91135	43.58828	46.35162	46.30218

Sample_ID	Absorbance	Concentration
1	1.3205	35.17822239
2	1.5595	45.42298493
3	1.5195	43.54037065
4	1.2935	34.12376461
5	1.4595	40.87079731
6	1.5945	47.15263196
7	1.3295	35.5323297
8	0.7695	6.159953516

Sample_ID	Absorbance	Concentration
49	1.5825	46.55012631
50	0.8325	13.52613113
51	0.7525	1.855929452
52	1.4135	38.92434655
53	1.4875	42.09597746
54	1.6245	48.70656465
55	1.5655	45.71366426
56	1.5275	43.90962793
57	1.5865	46.74981788