

- **Background (gray):** sample turbidity profile. The background spectrum is subtracted from the measured spectrum, resulting in the content spectrum.

Also the classical spectrometry data are shown. The A260/A280 ratio is used to determine the purity of the sample. For pure protein samples, the A260/A280 ratio is ~0.6. A horizontal red band on the spectrum indicates saturation when absorbance values have passed the upper limit of detection (275 OD on a High Lunatic Plate or Chip). Values outside the linear range are not reliable.

Report

A variety of report types are generated: an HTML, XML, TXT and a CSV file are created on both systems. In addition, the Lunatic also creates XLSX and PDF report files. On the Little Lunatic fixed report templates are used while the larger Lunatic system allows full flexible selection of the content to be reported.

Case study

In this case study a comparison was made between the NanoDrop 2000 and Lunatic. A gravimetric dilution series of a BSA/IgG mixture was measured on both instruments in octuplicate. The measured A280 concentration was plotted against the predetermined target concentration (Figure 5).

The results are very comparable and close to the target value (gray dotted line). In terms of linearity, the R² values and equations are also shown, indicating that not only results but also linearity is very similar.

Compatibility

For some protein extraction or purification protocols, detergents are needed to enhance solubility, disrupt cell membranes, etc. In some cases, these detergents can interfere with the self loadability of the Lunatic Chips, resulting in failed measurements (red flagged). In Table 1, the maximum allowed concentrations for most common detergents are listed.

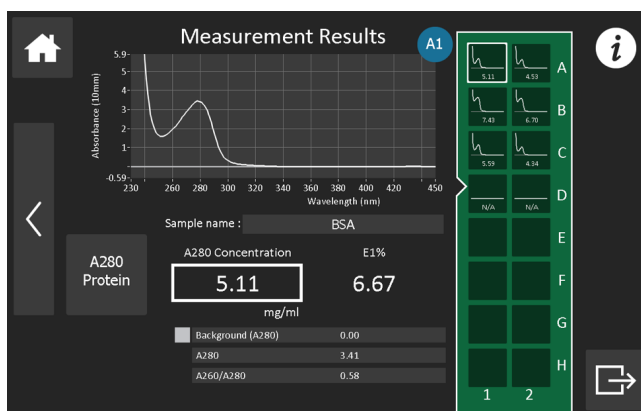


Figure 4: Illustration of the Results screen on the Little Lunatic. In addition to the A280 concentration value, A280 and A260/A280 ratio are displayed.

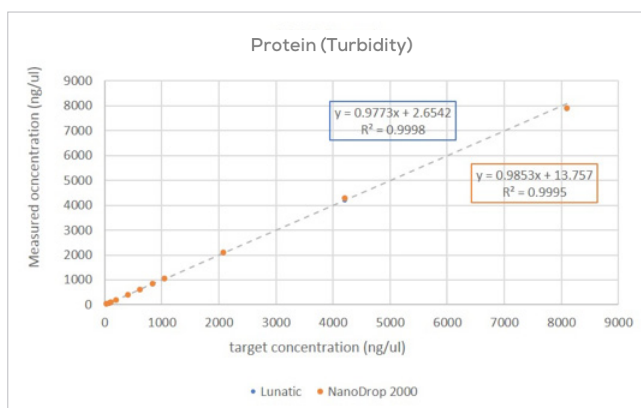


Figure 5: In this graph, octuplicate measurements of a BSA/IgG gravimetric dilution series are plotted against the target values. Measurements on Lunatic are shown in blue. NanoDrop 2000 measurements are displayed in red. The gray dotted line represents the y=x line.

Maximal detergent concentration		0 mg/mL BSA	1.5 mg/mL BSA	10 mg/mL BSA
Purification assays	Tween 80	10%	10%	20%
	TritonX-100	0.01%	0.01%	0.01%
	Tween 20	0.10%	2%	2%
Cell lysis	NP40	0.01%	0.01%	0.01%
	SDS	0.5%	0.5%	0.5%
	CHAPS	20%	20%	20%

Table 1: This table shows the maximum detergent concentration where no interference with self-loadability of the Lunatic Chips is found.



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