

Calculation of the Dye-to-Protein Ratio

Dye-to-protein Ratio (D/P) can be calculated using the equation:

$$DP = \frac{A_{conj(\lambda_{max})} \mathcal{E}_p}{(A_{conj(278)} - xA_{conj(\lambda_{max})}) \mathcal{E}_{dye}}$$

where $A_{conj(\lambda_{max})}$, $A_{conj(278)}$ are the absorbances at absorption maxima and at 278 nm of the dye—protein conjugate respectively;

\mathcal{E}_{dye} is the extinction coefficient of the dye at λ_{max} ,

\mathcal{E}_p is the extinction coefficient of the protein at 278 nm, for BSA: $\mathcal{E}_p = 45,540 \text{ M}^{-1}\text{cm}^{-1}$ and for IgG: $\mathcal{E}_p = 201,700 \text{ M}^{-1}\text{cm}^{-1}$.

The factor x in the denominator accounts for dye absorption at 278 nm: $x = A_{dye(278)} / A_{dye(\lambda_{max})}$.

Recommended x factor values:

Dye	x
K7-547	1.20
K7-545	3.38
K8-1252	0.10
K8-1342	0.07
K8-1344	0.13
K8-1352	0.08
K8-1407	0.10
K8-1626	0.10
K8-1641	0.05
K8-1642	0.05
K8-1644	0.06
K8-1649	0.13
K8-1663	0.06
K8-1667	0.07

Dye	x
K8-1669	0.07
K8-1672	0.12
K8-1682	0.10
K8-1762	0.08
K8-2602	0.09
K8-3002	0.29
K8-3335	0.10
K8-5035	0.05
K8-7035	0.15
K9-4113	0.15
K9-4119	0.15
K9-4142	0.12
K9-4149	0.15