

Calculation of the Dye-to-Protein Ratio

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

$$DP = \frac{A_{conj(\lambda_{max})} \epsilon_p}{(A_{conj(278)} - xA_{conj(\lambda_{max})}) \epsilon_{dye}}$$

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

ϵ_{dye} is the extinction coefficient of the dye at λ_{max} ,

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

The factor x in the denominator accounts for dye absorption at 278 nm ($A_{dye(278)}$) which is a percent of the absorption of the dye at its maximum absorption ($A_{dye(\lambda_{max})}$) ($x = A_{dye(278)} / A_{dye(\lambda_{max})}$).

Recommended x factor values:

Dye	x
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
K8-1663	0.06
K8-1667	0.07
K8-1672	0.12
K8-1682	0.10
K8-1762	0.08