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Author Correction: Characterization of Split Fluorescent Protein Variants and Quantitative Analyses of Their Self-Assembly Process

Tuğba Köker, Anthony Fernandez & Fabien Pinaud

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This Article contains errors in Table 1. E124V was incorrectly included in the ‘Substitutions’ column for fICFP2 and sICFP2. The correct Table 1 appears below.

As a result, in the Results section under the subheading ‘Point mutations to generate full-length and split-GFP, split-YFP and split-CFP variants’,

“We also produced two fICFP/sICFP variants²¹, fICFP1/sICFP1 (D19E/D21E/Y66W/E124V/ H148D/T205S) and fICFP2/sICFP2 (D19E/D21E/Y66W/E124V/H148D/V167I/T205S) (Table 1). Both variants contain the Y66W substitution that alters the GFP spectral properties to CFP²⁵, the H148D and T205S substitution that improve CFP quantum yield (QY)^{26,27}, a E124V substitution, which allows for faster folding rates in superfolder GFP²⁸ as well as D19E and D21E substitutions that provide faster initial rate of cyan fluorescence appearance compared to sICFP carrying only Y66W and T205S mutations²¹. fICFP2/sICFP2 variants also contain a V167I substitution, which provides increased cyan fluorescence brightness²¹.”

should read:

“We also produced two fICFP/sICFP variants²¹, fICFP1/sICFP1 (D19E/D21E/Y66W/E124V/ H148D/T205S) and fICFP2/sICFP2 (D19E/D21E/Y66W/H148D/V167I/T205S) (Table 1). Both variants contain the Y66W substitution that alters the GFP spectral properties to CFP²⁵, the H148D and T205S substitutions that improve CFP quantum yield (QY)^{26,27}, and the D19E and D21E substitutions that provide faster initial rate of cyan fluorescence appearance compared to sICFP carrying only Y66W and T205S mutations²¹. The fICFP1/sICFP1 variants contain a E124V substitution, which reportedly allows for faster folding rates in superfolder GFP²⁸, while the fICFP2/sICFP2 variants contain a V167I substitution, which provides increased cyan fluorescence brightness²¹.”

In the Results section under the subheading ‘Spectral properties of full-length FP and split-FP variants’,

“The additional V167I substitution in fICFP2/sICFP2 did not induce significant spectral changes (Table 1, Fig. 1a,b).”

should read:

“The additional V167I substitution and the absence of E124V in fICFP2/sICFP2 did not induce significant spectral changes (Table 1, Fig. 1a,b).”

In the Results section under the subheading ‘Photobleaching characteristics of split-GFP variants’,

“Concerning the photobleaching rates (k_3), the V167I mutation in sGFP1 slows down irreversible photobleaching by 15% compared to sGFPori.”

should read:

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	Exc. λ (nm)	Em. λ (nm)	ϵ (M ⁻¹ cm ⁻¹)	Φ	Brightness	τ_1 (ns)	A ₁ (%)	τ_2 (ns)	A ₂ (%)	Substitutions
flGFPori	485	507	37,700	0.66	24,880	2.46	100	—	—	S30R, N39I, F64L, S65T, F99S, T105K, E111V, I128T, Y145F, M153T, V163A, K166T, I167V, I171V, S205T, A206V, K221H, F223Y, T225N
flGFP1	485	507	33,800	0.75	25,350	2.5	100	—	—	^ψ V167T
flGFP2	491	510	38,200	0.77	29,410	2.77	100	—	—	^ψ V167T, S72A
flGFP3	482	508	39,900	0.68	27,130	2.67	100	—	—	^ψ V167T, S72A, N149K
flYFP1	511	522	68,300	0.61	41,660	2.76	100	—	—	^ψ T65G, T203Y, T205S
flYFP2	509	522	38,200	0.54	20,630	1.13	29	3.14	71	^ψ T65L, T203Y, T205S
flYFP3	515	526	37,100	0.51	18,920	0.72	37	3.59	63	^ψ T203Y, T205A
flCFP1	435	476	20,400	0.41	8,360	0.98	62	2.57	38	^δ D19E, D21E, Y66W, E124V, H148D, T205S
flCFP2	436	476	21,300	0.42	8,950	0.97	27	2.76	73	^δ D19E, D21E, Y66W, H148D, V167I, T205S
sGFPori	485	508	37,700	0.59	22,240	2.29	100	—	—	S30R, N39I, F64L, S65T, F99S, T105K, E111V, I128T, Y145F, M153T, V163A, K166T, I167V, I171V, S205T, A206V
sGFP1	485	508	33,800	0.62	20,960	2.34	100	—	—	^δ V167T
sGFP2	491	510	38,200	0.67	25,730	2.64	100	—	—	^δ V167T, S72A
sGFP3	480	508	39,900	0.29	11,600	2.5	100	—	—	^δ V167T, S72A, N149K
sYFP1	510	523	68,300	0.44	30,100	2.62	100	—	—	^δ T65G, T203Y, T205S
sYFP2	509	522	38,200	0.09	3,440	0.74	22	2.9	78	^δ T65L, T203Y, T205S
sYFP3	515	524	37,100	0.35	12,990	0.47	40	3.28	60	^δ T203Y, T205A
sCFP1	433	475	20,400	0.18	3,670	0.81	40	2.4	60	^δ D19E, D21E, Y66W, E124V, H148D, T205S
sCFP2	433	476	21,300	0.23	4,900	0.64	25	2.52	75	^δ D19E, D21E, Y66W, H148D, V167I, T205S

Table 1. Fluorescence properties of full-length and split fluorescent protein variants. ϵ : Molar extinction coefficient, Φ : Quantum yield, ψ : Additional substitutions in flGFPori, δ : Additional substitutions in sGFPori, τ_1 & τ_2 : Fluorescence lifetimes 1 & 2 for two-photon 870 nm excitation, A₁ & A₂: Fractions of fluorescence lifetimes 1 & 2.

“Concerning the photobleaching rates (k_3), the V167T mutation in sGFP1 slows down irreversible photobleaching by 15% compared to sGFPori.”

In the Results section under the subheading ‘Folding kinetics of full-length FP variants’,

“Interestingly, the additional V167I mutation in flCFP2 dramatically improves both k_{fold1} (1.955 min⁻¹) and k_{fold2} (0.195 min⁻¹) compared to flCFP1.”

should read:

“Interestingly, the additional V167I mutation and the absence of E124V in flCFP2 dramatically improve both k_{fold1} (1.955 min⁻¹) and k_{fold2} (0.195 min⁻¹) compared to flCFP1.”

In the Results section under the subheading ‘Chromophore maturation kinetic of full-length FP variants’,

“The flCFP variants flCFP1 (k_{mat} : 0.011 min⁻¹) and flCFP2 (k_{mat} : 0.012 min⁻¹) have maturation rate constants similar to that previously reported for ECFP (k_{mat} : 0.0096 min⁻¹)⁵⁵ and the V167I substitution in flCFP2 does not impact the maturation rate (Fig. 3c).”

should read:

“The flCFP variants flCFP1 (k_{mat} : 0.011 min⁻¹) and flCFP2 (k_{mat} : 0.012 min⁻¹) have maturation rate constants similar to that previously reported for ECFP (k_{mat} : 0.0096 min⁻¹)⁵⁵ and neither the presence of E124V in flCFP1 nor that of V167I in flCFP2 impact the maturation rate (Fig. 3c).”

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