Table 1. Properties of the most useful FP variants

Protein (acronym)	Ex (nm)	Em (nm)	EC × 10^{-3} M^{-1} cm^{-1}	QY	Oligomeric structure	Relative brightness (% of EGFP)	Reference
Blue fluorescent proteins							
EBFP2	383	448	32.0	0.56	Monomer[a]	53	Ai et al. 2007
Azurite	384	450	26.2	0.55	Monomer[a]	43	Mena et al. 2006
mTagBFP	399	456	52.0	0.63	Monomer	98	Subach et al. 2008
Cyan fluorescent proteins							
ECFP	439	476	32.5	0.40	Monomer[a]	39	Cubitt et al. 1995
Cerulean	433	475	43.0	0.62	Monomer[a]	79	Rizzo et al. 2004
CyPat	435	477	35.0	0.51	Monomer[a]	53	Nguyen and Daugherty 2005
mTFPI	462	492	64.0	0.85	Monomer	162	Ai et al. 2006
Green fluorescent proteins							
EGFP	488	507	56.0	0.60	Monomer[a]	100	Heim et al. 1995
Emerald	487	509	57.5	0.68	Monomer[a]	116	Cubitt et al. 1999
Superfolder GFP	485	510	83.3	0.65	Monomer[a]	160	Pédelacq et al. 2006
Azami Green	492	505	55.0	0.74	Monomer	121	Karasawa et al. 2003
mWasabi	493	509	70.0	0.80	Monomer	167	Ai et al. 2008b
T-Sapphire	399	511	44.0	0.60	Monomer[a]	79	Zapata-Hommer and Griesbeck 2003
Yellow fluorescent proteins							
EYFP	514	527	83.4	0.61	Monomer[a]	151	Miyawaki et al. 1999
Topaz	514	527	94.5	0.60	Monomer[a]	169	Tsien 1998
Venus	515	528	92.2	0.57	Monomer[a]	156	Nagai et al. 2002
Citrine	516	529	77.0	0.76	Monomer	174	Griesbeck et al. 2001
YPet	517	530	104	0.77	Monomer[a]	238	Nguyen and Daugherty 2005
Orange fluorescent proteins							
Kusabira Orange	548	559	51.6	0.60	Monomer	92	Karasawa et al. 2004
Kusabira Orange2	551	565	63.8	0.62	Monomer	118	Sakaue-Sawano et al. 2008
mOrange2	549	565	58.0	0.60	Monomer	104	Shaner et al. 2008
tdTomato-Tandem Dimer	554	581	138.0	0.69	Pseudomonomer	283	Shaner et al. 2004
TagRFP	555	584	100.0	0.48	Monomer	142	Merzlyak et al. 2007
TagRFP-T	555	584	81.0	0.41	Monomer	99	Shaner et al. 2008
Red fluorescent proteins							
mRuby	558	605	112.0	0.35	Monomer	117	Kredel et al. 2009
mApple	568	592	75.0	0.49	Monomer	109	Shaner et al. 2008
mStrawberry	574	596	90.0	0.29	Monomer	78	Shaner et al. 2004
mRFP1	584	607	50.0	0.25	Monomer	37	Campbell et al. 2002
mCherry	587	610	72.0	0.22	Monomer	47	Shaner et al. 2004
tdKeima-Tandem Dimer	440	620	28.8	0.24	Pseudomonomer	21	Kogure et al. 2008
mKate2	588	633	62.5	0.40	Monomer	74	Shcherbo et al. 2009
mPlum	590	649	41.0	0.10	Monomer	12	Wang et al. 2004

[a]Signifies a weak dimer.

The peak excitation (Ex) and emission (Em) wavelengths, molar extinction coefficient (EC), quantum yield (QY), relative brightness, and physiological quaternary structure are listed. The computed brightness values were derived from the product of the molar extinction coefficient and quantum yield, divided by the value for EGFP.