

Fluorescent Proteins

(형광단백질)

that's
GOOD
science!™

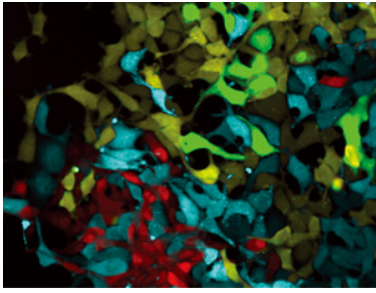


Most valuable cell biology tools

- Particularly for microscopy and flow cytometry
- Living Colors® 의 다양한 색상과 적용
- 형광단백질을 통해 목적 유전자의 다양한 기능 해석
- 형광단백질 검출을 위한 항체 시리즈



Clontech **TakaRa** cellartis



Reporters and antibodies for every application

Living Colors® Fluorescent Proteins (FP)

다카라바이오는 다양한 용도에 사용 가능한 Living Colors® Fluorescent Proteins (FP, 형광단백질) 벡터와 검출 항체를 갖추고 있다. 형광단백질은 기질이나 보조인자 없이 형광을 발하기 때문에, 살아있는 세포나 고정된 세포에서 실시간으로 형광 현미경 또는 FACS (Flow Cytometer) 등을 이용해 생체 내를 관찰할 수 있어 다양한 실험에 활용된다.

Colorful choices for your bright ideas

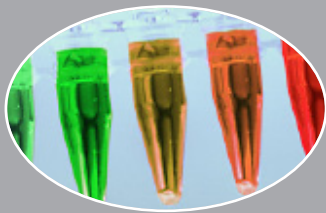
형광단백질 Living Color® 시리즈는 천연 유래로, full-color spectrum을 보유하고 있다. 타 형광단백질에 비해 형광강도와 용해도를 개선하였으며, 세포 독성이 낮다. 또 유전자 서열을 치환해 포유류에 최적화함으로써, 인간 세포 내에서 효율적으로 발현이 가능하다. 관찰하고자 하는 형광의 색상과 실험 목적에 부합하는 형태를 확인하여 형광의 종류를 선택할 수 있다.

Monomers

- 입체 구조에 낮은 영향
- 융합 단백질 tag
- Multi-color labeling

Oligomers

- 높은 형광 강도
- Reporter



- Far-Red FP
- Yellow FP
- Cyan FP
- Orange FP

Tag/융합단백질

- AcGFP1 (475/505)
EGFP와 동등한 기능성을 가지면서도, 보다 밝은 녹색 형광단백질

Reporter

- ZsGreen1 (493/505)
높은 녹색 형광 강도로, 발현이 낮을 때도 검출 가능

Tag/융합단백질

- HcRed1 (588/618)
- mRaspberry (598/625)
- mPlum (590/649)
- mBanana (540/553)
- mOrange2 (549/565)

Reporter

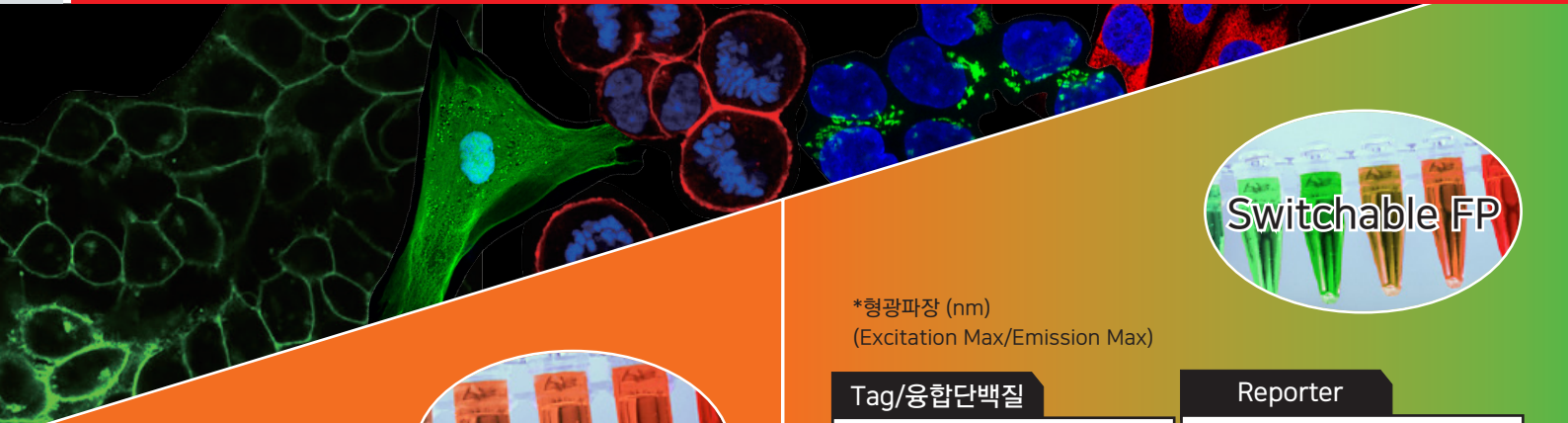
- E2-Crimson (611/646)
- ZsYellow1 (529/539)
- AmCyan1 (458/489)

- FRET 사용 가능한 최적의 형광 단백질 조합

AcGFP1	DsRed-Monomer
AcGFP1	mCherry
mOrange	mStrawberry
mOrange	mCherry

With highly specific antibodies,
detect our full spectrum of fluorescent proteins

Code	제품명	용량	용도*	AcGFP1	ZsGreen1	GFP	GFPuv	EGFP**	EYFP***	ECFP***
632393	Living Colors® DsRed Monoclonal Antibody	20 µl	WB							
632496	Living Colors® DsRed Polyclonal Antibody	100 µl	WB,IP,IC							
632543	Living Colors® mCherry Monoclonal Antibody	100 µl	WB							
632475	Living Colors® Anti-RCFP Polyclonal Pan Antibody	100 µl	WB		○					
632569	Living Colors® EGFP Monoclonal Antibody	100 µl	WB			○	○	○		
632375	Living Colors® GFP Monoclonal Antibody	100 µl	WB,IP,IC	○		○	○			
632593	Living Colors® Full-Length GFP Polyclonal Antibody	20 µl	WB,IP,IC	○		○	○	○	○	○
632598	Living Colors® Full-Length ZsGreen Monoclonal Antibody	100 µl	WB		○					
632474	Living Colors® Full-Length ZsGreen Polyclonal Antibody	100 µl	WB		○					
632380	Living Colors® A.v. Monoclonal Antibody (JL-8)	20 µl	WB,IP,IC	○	○				○	○



*형광파장 (nm)
(Excitation Max/Emission Max)

Tag/융합단백질

- Dendra 2 (490/507)
→ Converted (553/573)
- PAmCherry (404/-)
→ Activated (564/595)

Reporter

- Timer (483/500)
→ Converted (558/583)

Tag/융합단백질

- DsRed-Monomer (557/592)
매우 높은 가용성, 형질전환 12시간 후 관찰 가능
- DsRed2 (563/582)
- tdTomato (554/581)
- mCherry (587/610)
- mStrawberry (574/596)

Reporter

- AsRed2 (576/592)
- DsRed-Express2 (554/591)
신속하게 매우 밝은 발색단 형성



형광단백질 벡터 Cloning에도 최적!

In-Fusion® Cloning Kit (Code 639648)

목적하는 실험에 따라 promoter, selection marker 등을 고려하여 형광단백질 벡터를 선택 할 수 있으며, 포유류 세포, 효모, 식물, 균류 등 폭넓게 활용할 수 있다.

• Promoterless vector 활용

Promoter reporters

Measuring proteasome activity

• 자가 형광 영향이 적은 Red, far red 사용

In vivo imaging

Bacterial expression

• 실시간으로 전사 활성의 변동 검출

Timed gene expression

Viral expression

FRET

Fusion proteins

Cell labeling

Subcellular labeling

Visualizing gene expression

Kinetic study

• 단백질 간 상호작용 확인

• 특정 소기관 관찰
• Localization tag이 부착된 FP를 활용

• Bicistronic (IRES) vector
• 목적유전자와 형광단백질을 한번에 발현

다카라바이오는 형광단백질을 검출할 수 있는 다양한 monoclonal / polyclonal antibody를 갖추고 있다. 각 항체는 형광단백질의 위치에 관계 없이, 특이성이 검증되었을 뿐 아니라, lot간 일정한 성능을 보증한다.

mCherry	mStrawberry	PAmCherry	AsRed2	DsRed-Monomer	DsRed2	tdTomato	DsRed-Express	DsRed-Express2	mPlum	E2-Crimson	mRaspberry	HcRed1	mOrange2	mBanana	ZsYellow	Timer	AmCyan1
○	○			○	○	○	○	○	○	○	○		○	○		○	
○	○																
○	○	○											○				
			○		○							○			○		○

* WB = Western Blot, IP = immunoprecipitation, IC = Immunocytochemistry
 ** Not sold by Takara Bio
 *** EYFP, ECFP is highly related to EGFP and is recognized by the same antibodies


Fluorescent Protein Vectors Product Lists

*K: Kanamycin N: Neomycin
A: Ampicillin H: Hygromycin
P: Puromycin

**IRES= Bicistronic vector
***EF1alpha= EF1alpha promoter

Code	제품명	Selection Marker*	
		원핵	진핵
Mammalian expression / N-terminal			
632448	pZsGreen1-N1 Vector	K	N
632469	pAcGFP1-N1 Vector	K	N
632489	pAcGFP1-Hyg-N1 Vector	A	H
632532	ptdTomato-N1 Vector	K	N
632584	pAmCherry-N1 Vector	K	N
632523	pmCherry-N1 Vector	K	N
632465	pDsRed-Monomer-N1 Vector	K	N
632494	pDsRed-Monomer-Hyg-N1 Vector	A	H
632429	pDsRed-Express-N1 Vector	K	N
632429	pDsRed-Express-N1 Vector	K	N
632537	pDsRed-Express2-N1 Vector	K	N
632537	pDsRed-Express2-N1 Vector	K	N
632406	pDsRed2-N1 Vector	K	N
632449	pAsRed2-N1 Vector	K	N
632554	pE2-Crimson-N1 Vector	K	N
632442	pAmCyan1-N1 Vector	K	N
632445	pZsYellow1-N1 Vector	K	N
632549	pmOrange2-N1 Vector	K	N
632584	pAmCherry-N1 Vector	K	N
Bacterial expression			
632446	pZsGreen Vector	A	-
632468	pAcGFP1 Vector	A	-
632531	ptdTomato Vector	A	-
632530	pmStrawberry Vector	A	-
632522	pmCherry Vector	A	-
632467	pDsRed-Monomer Vector	A	-
632535	pDsRed-Express2 Vector	A	-
632535	pDsRed-Express2 Vector	A	-
632412	pDsRed-Express Vector	A	-
632412	pDsRed-Express Vector	A	-
632404	pDsRed2 Vector	A	-
632451	pAsRed2 Vector	A	-
632527	pmPlum Vector	A	-
632410	pHcRed1 Vector	A	-
632553	pE2-Crimson Vector	A	-
632440	pAmCyan Vector	A	-
632443	pZsYellow Vector	A	-
632528	pmBanana Vector	A	-
632548	pmOrange2 Vector	A	-
632402	pTimer Vector	A	-
632544	pDendra2 Vector	A	-
Promoter reporters			
632428	pZsGreen1-DR Vector	K	N
632473	pZsGreen1-1 Vector	K	N
632497	pAcGFP1-1 Vector	K	N
632525	pmCherry-1 Vector	K	N
632423	pDsRed-Express-DR Vector	K	N
632423	pDsRed-Express-DR Vector	K	N
632536	pDsRed-Express2-1 Vector	K	N
632536	pDsRed-Express2-1 Vector	K	N
632413	pDsRed-Express-1 Vector	K	N
632413	pDsRed-Express-1 Vector	K	N
632405	pDsRed2-1 Vector	K	N
632422	pHcRed1-DR Vector	K	N
632411	pHcRed1-1 Vector	K	N
632403	pTimer-1 Vector	K	N
Visualizing gene expression			
632478	pIRES2**-ZsGreen1 Vector	K	N
632515	pIRES2-AcGFP1-Nuc Vector	K	N
632435	pIRES2-AcGFP1 Vector	K	N
631976	pEF1alpha***-IRES-ZsGreen1 Vector	K	N
632540	pIRES2 DsRed-Express2 Vector	K	N
632540	pIRES2 DsRed-Express2 Vector	K	N
631980	pEF1alpha-IRES-DsRed-Express2 Vector	K	N
631980	pEF1alpha-IRES-DsRed-Express2 Vector	K	N

Code	제품명	Selection Marker*	
		원핵	진핵
Mammalian expression / C-terminal			
632447	pZsGreen1-C1 Vector	K	N
632470	pAcGFP1-C1 Vector	K	N
632492	pAcGFP1-Hyg-C1 Vector	A	H
632533	ptdTomato-C1 Vector	K	N
632585	pAmCherry-C1 Vector	K	N
632524	pmCherry-C1 Vector	K	N
632466	pDsRed-Monomer-C1 Vector	K	N
632495	pDsRed-Monomer-Hyg-C1 Vector	A	H
632430	pDsRed-Express-C1 Vector	K	N
632430	pDsRed-Express-C1 Vector	K	N
632538	pDsRed-Express2-C1 Vector	K	N
632538	pDsRed-Express2-C1 Vector	K	N
632407	pDsRed2-C1 Vector	K	N
632450	pAsRed2-C1 Vector	K	N
632555	pE2-Crimson-C1 Vector	K	N
632441	pAmCyan1-C1 Vector	K	N
632444	pZsYellow1-C1 Vector	K	N
632550	pmOrange2-C1 Vector	K	N
632585	pAmCherry-C1 Vector	K	N
Lentiviral expression			
632565	pLVX-ZsGreen1-N1 Vector	A	P
632566	pLVX-ZsGreen1-C1 Vector	A	P
632187	pLVX-IRES-ZsGreen1 Vector	A	-
631982	pLVX-EF1alpha-IRES-ZsGreen1 Vector	A	-
631983	pLVX-EF1alpha-AcGFP1-N1 Vector	A	P
631984	pLVX-EF1alpha-AcGFP1-C1 Vector	A	P
632154	pLVX-AcGFP1-N1 Vector	A	P
632155	pLVX-AcGFP1-C1 Vector	A	P
632563	pLVX-tdTomato-N1 Vector	A	P
632564	pLVX-tdTomato-C1 Vector	A	P
632586	pLVX-PAmCherry-N1 Vector	A	P
632587	pLVX-PAmCherry-C1 Vector	A	P
632562	pLVX-mCherry-N1 Vector	A	P
632561	pLVX-mCherry-C1 Vector	A	P
631238	pLVX-IRES-tdTomato Vector	A	-
631237	pLVX-IRES-mCherry Vector	A	-
631986	pLVX-EF1alpha-mCherry-N1 Vector	A	P
631985	pLVX-EF1alpha-mCherry-C1 Vector	A	P
631987	pLVX-EF1alpha-IRES-mCherry Vector	A	-
631990	pLVX-EF1alpha-DsRed-Monomer-N1 Vector	A	P
631989	pLVX-EF1alpha-DsRed-Monomer-C1 Vector	A	P
632152	pLVX-DsRed-Monomer-N1 Vector	A	P
632153	pLVX-DsRed-Monomer-C1 Vector	A	P
632560	pLVX-DsRed-Express2-N1 Vector	A	P
632560	pLVX-DsRed-Express2-N1 Vector	A	P
632559	pLVX-DsRed-Express2-C1 Vector	A	P
632559	pLVX-DsRed-Express2-C1 Vector	A	P
632558	pLVX-AmCyan1-N1 Vector	A	P
632557	pLVX-AmCyan1-C1 Vector	A	P
632586	pLVX-PAmCherry-N1 Vector	A	P
632587	pLVX-PAmCherry-C1 Vector	A	P
Retroviral expression			
632520	pRetroX-IRES-ZsGreen1 Vector	A	-
632505	pRetroQ-AcGFP1-N1 Vector	A	P
632506	pRetroQ-AcGFP1-C1 Vector	A	P
632521	pRetroX-IRES-DsredExpress Vector	A	-
632521	pRetroX-IRES-DsredExpress Vector	A	-
632568	pRetroQ-mCherry-N1 Vector	A	P
632567	pRetroQ-mCherry-C1 Vector	A	P
632507	pRetroQ-DsRed Monomer-N1 Vector	A	P
632508	pRetroQ-DsRed Monomer-C1 Vector	A	P

어려웠던 Lentivirus gene transfer를 So easy하게 

Packaging 역가측정 농축 및 버퍼교환