



Catalogue of validated fluorescent probes

Validated probes for receptor pharmacology and fluorescence-based assays • September 2026

The following tables list the available ligands for GPCRs, E3 ligases and intracellular receptors, together with their selectivity, excitation and emission wavelengths, binding affinity or pharmacological parameter, as specified for each target, and the assays in which they have been validated. We also include two fluorescent GTPγS probes for GPCR functional assays.

Product code colour indicates the probe emission band.

GPCR fluorescent ligands

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity ^a	Validation
Dopamine Receptor						
D ₂	CELT-074	DR-589-3	589/616	K _i = 1.1 nM	Selective K _i (D ₃) = 136.5 nM K _i (D ₄) = 152.7 nM	Fluorescence microscopy in transfected cells Flow cytometry
	CELT-426	DR-560-1	560/571	K _i = 89.3 nM	Partially selective K _i (D ₃) = 194.8 nM K _i (D ₄) = 263.0 nM	Fluorescence polarization Flow cytometry
	CELT-075	DR-743-1	748/776	K _i = 3.2 nM	Selective K _i (D ₃) = 294.6 nM K _i (D ₄) = 220.3 nM	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
D ₃	CELT-429	DR-589-7	589/616	K _i = 75.4 nM	Selective (% displ. 1 μM) D ₂ = 6% D ₄ = 3%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-419	DR-560-2	560/571	K _i = 65.6 nM	Partially selective K _i (D ₂) = 151.4 nM	Fluorescence polarization
D ₂ /D ₃	CELT-240	DR-589-6	589/616	K _i (D ₃) = 2.1 nM K _i (D ₂) = 2.3 nM	Selective against D₄ (% displ. 1 μM) D ₄ = 1%	Flow cytometry
	CELT-241	DR-646-1	646/662	K _i (D ₃) = 4.8 nM K _i (D ₂) = 5.2 nM	Selective against D₄ K _i (D ₄) = 302.5 nM	Fluorescence microscopy in transfected cells (<i>ongoing</i>)

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity ^a	Validation
Adenosine Receptor						
PAN-ADO	CELT-298	ADOR-646-1	646/662	K_i (A ₁) = 20.9 nM K_i (A _{2A}) = 171.0 nM K_i (A _{2B}) = 44.7 nM K_i (A ₃) = 95.2 nM	Non-selective	Fluorescence microscopy in transfected cells
A₁	CELT-448	ADOR-560-1	560/571	K_i = 26.2 nM	Selective (% displ. 1 μ M) A _{2A} = 11% A _{2B} = 22% A ₃ = 24%	Fluorescence polarization (<i>ongoing</i>) Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-372	ADOR-589-1	589/616	K_i (A ₁) = 1.9 nM K_i (A _{2B}) = 24.7 nM	Partially selective K_i (A _{2A}) = 80.3 nM K_i (A ₃) = 967.8 nM	Fluorescence microscopy in transfected cells
	CELT-360	ADOR-646-2	646/662	K_i = 8.6 nM	Non-selective K_i (A _{2A}) = 98.4 nM K_i (A _{2B}) = 72.2 nM K_i (A ₃) = 231.0 nM	Fluorescence microscopy in transfected cells
A_{2A}	CELT-464	ADOR-575-2	575/590	K_i = 10.9 nM	Selective (% displ. 1 μ M) A ₁ = 40% A _{2B} = 47% A ₃ = 20%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-316	ADOR-589-2	589/616	K_i = 116.1 nM	Selective (% displ. 1 μ M) A ₁ = 18% A _{2B} = 33% A ₃ = 31%	Fluorescence microscopy in native cells
	CELT-300	ADOR-646-4	646/662	K_i = 8.4 nM	Selective (% displ. 1 μ M) A ₁ = 31% A _{2B} = 18% A ₃ = 38%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
A_{2B}/A₃	CELT-327	ADOR-589-4	589/616	K_i (A _{2B}) = 35.6 nM K_i (A ₃) = 45.7 nM	Selective (% displ. 1 μ M) A ₁ = 41 % A _{2A} = 1 %	Fluorescence microscopy in native cells ¹
A₃	CELT-228	ADOR-560-2	560/571	K_i = 52.7 nM	Selective (% displ. 1 μ M) A ₁ = 2 % A _{2A} = 1 % A _{2B} = 5 %	Fluorescence microscopy in native cells; Fluorescence polarization ^{1,2}

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity ^a	Validation
	CELT-071	ADOR-589-7	589/616	$K_i = 6.1$ nM	Selective (% displ. 1 μ M) $A_1 = 2$ % $A_{2A} = 2$ % $A_{2B} = 2$ %	Fluorescence microscopy in transfected and native cells
	CELT-480	ADOR-646-6	646/662	$K_i = 12.0$ nM	Selective (% displ. 1 μ M) $A_1 = 38$ % $A_{2A} = 23$ % $A_{2B} = 49$ %	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
Serotonin Receptor						
PAN-5-HT₂	CELT-386	DR-589-2	589/616	K_i (5-HT _{2A}) = 4.9 nM K_i (5-HT _{2B}) = 53.0 nM K_i (5-HT _{2C}) = 47.8 nM	Non-selective	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
5-HT_{2A}	CELT-426	DR-560-1	560/571	$K_i = 6.2$ nM	Selective (% displ. 1 μ M) 5-HT _{2B} = 12% 5-HT _{2C} = 35%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
Cannabinoid Receptor						
PAN-CB	CELT-335	CBR-646-1	646/662	K_i (CB ₁) = 44.8 nM K_i (CB ₂) = 7.4 nM	Non-selective	HTRF in adherent cells ^{3,4} High-content screening Fluorescence microscopy in transfected cells
CB₂	CELT-331	CBR-646-3	646/662	$K_i = 75.9$ nM	Selective (% displ. 1 μ M) CB ₁ = 20 %	High-content screening Fluorescence microscopy in transfected cells
Muscarinic Receptor						
M₁/M₂	CELT-249	MUSCR-589-2	589/616	K_i (M ₁) = 133.0 nM K_i (M ₂) = 11.5 nM	No data	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-095	MUSCR-743-1	748/776	K_i (M ₁) = 57.8 nM K_i (M ₂) = 37.7 nM	No data	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
Adrenergic Receptor						
α_{1A}	CELT-033	ADR-560-1	560/571	$K_i = 5.0$ nM	Selective (% displ. 1 μ M) $\alpha_{2A} = 15$ %	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-030	ADR-646-1	646/662	$K_i = 28.3$ nM	Selective K_i (α_{2A}) = 1081 nM	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
C5a Receptor						
C5aR	CELT-058	C5aR-646-1	646/662	EC ₅₀ = 24.9 nM	Not defined	Flow cytometry

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity ^a	Validation
Angiotensin Receptor						
AT₁	CELT-045	ATR-646-1	646/662	K_i = 160.0 nM	Selective (% displ. 1 μ M) AT ₂ = 8.4%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
	CELT-252	ATR-560-1	560/571	K_i = 39.0 nM	Selective (% displ. 1 μ M) AT ₂ = 3.3%	Fluorescence microscopy in transfected cells (<i>ongoing</i>)
GLP1 Receptor						
GLP1	CELT-111 (LUXendin551)	GLP1-551-1	551/576	pIC ₅₀ = 7.2	Selective ⁸	Widefield/confocal/2-photon microscopy in live and fixed mammalian cells and tissue, as well as anaesthetized mice ⁵
	CELT-112 (LUXendin645)	GLP1-645-1	645/664	pIC ₅₀ = 7.5	Selective ⁹	Widefield/confocal/2-photon microscopy in live and fixed mammalian cells and tissue, as well as anaesthetized mice ⁶ TR-FRET
	CELT-113 (LUXendin762)	GLP1-762-1	762/784	pIC ₅₀ = 7.0	Selective ⁹	Widefield/confocal/2-photon microscopy in live and fixed mammalian cells and tissue, as well as anaesthetized mice. ⁸ Non-invasive fluorescence preclinical imaging ⁷⁻⁹
Oxytocin Receptor						
OTR	CELT-114	OTR-597-1	597/657 (water)	K_i = 0.54 nM	Not defined	TR-FRET and confocal microscopy ¹⁰
	CELT-115	OTR-650-1	650/667	K_d = 1.59 nM	Selective >1000 nM (V1aR and V1bR) 509 nM (V2R)	TR-FRET and confocal microscopy ¹¹

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity ^a	Validation
Dual GLP1/GIP Receptors						
GLP1/GIP	CELT-118	GLP1-GIP-544-1	561/570	No data	Dual	Widefield/confocal/2-photon microscopy in live and fixed mammalian cells and tissue, as well as anaesthetized mice ¹²
	CELT-119	GLP1-GIP-660-1	633/662	K _d (GLP1) = 1.375 nM K _d (GIP) = 6.458 nM	Dual	Widefield/confocal/2-photon microscopy in live and fixed mammalian cells and tissue, as well as anaesthetized mice ¹²

^a K_i or % displacement at 1 μ M measured by radioligand binding assay. For the C5aR ligand, the value corresponds to EC₅₀. For GLP1R ligands, the values correspond to pIC₅₀. For OTR ligands, K_i was determined by competition experiments against [³H]AVP (labelled arginine vasopressin) for CELT-114, and K_d was determined by TR-FRET saturation binding experiments for CELT-115.

Probes for GPCR functional assays

Target	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Description	Validation
G protein	CELT-505	G-FUN-503-1	503/506	fluorescent GTPγS - green	G protein activation assays in steady state and kinetic mode
	CELT-503	G-FUN-589-1	589/616	fluorescent GTPγS - red	G protein activation assays in steady state and kinetic mode

Fluorescent ligands for E3 ligases

E3 ligase	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding	Selectivity	Validation
VHL	CELT-050	VHL-646-1	646/662	K _d = 96.0 nM ^a	Not defined	TR-FRET competition binding

^a K_d in fluorescence polarization competition binding assay.

Fluorescent ligands for intracellular receptors

Receptor	Code	Catalogue no.	$\lambda_{exc}/\lambda_{em}$ (nm)	Binding ^a	Selectivity	Validation
SIGMA receptor σ_1 / σ_2	CELT-483	σ R-646-1	646/662	K _i (σ_1) = 51.3 nM K _i (σ_2) = 30.2 nM	Non-selective	Flow cytometry ¹³ Confocal microscopy ¹³ Live cell microscopy ¹³
	CELT-483 + Masking agents^b	σ R-BOX-1				

^a K_i by radioligand binding assay.

^b We also provide kits of CELT-483 together with potent and selective masking agents for σ_1 and σ_2 receptors (L6 and F390, respectively).

Catalogue of validated biotinylated ligands

The following table lists the available ligand for GPCRs, together with its selectivity and affinity measured by a radioligand binding assay.

GPCR ligands

Receptor	Code	Catalogue no.	Affinity ^a	Selectivity ^a
Cannabinoid Receptor				
CB₂	CELT-506	CB2-BTN-1	41.8 nM	Selective (% displ. 1 μM) CB ₁ = 25 %

^a K_i by radioligand binding assay.

If you are interested in any of these ligands but they have not yet been validated for your assay, please let us know. Based on our experience, we can advise you on the most suitable fluorophore and can also develop new versions (i.e., retaining the pharmacophore while changing the fluorophore) with a turnaround of 4–6 weeks.

Contact Information

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