

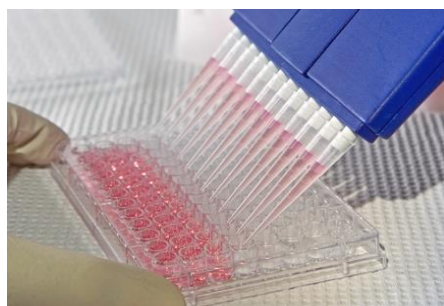


Cell-Based Assays 2017

Axxam S.p.A. (Italy) offers **functional cell-based assays** for protein targets of relevance to drug discovery research, including challenging targets such as multi subunit ion channels and current “hot” targets of interest. All assays are thoroughly QCed and validated for high throughput screening (HTS) applications using 96- and 384-well titer plates. We are continually developing new assays. If your target of interest is not listed in this catalogue please inquire for availability.

Key Features

- Reliable, high quality assays
 - ▶ optimal cell lines and detection systems
 - ▶ stable expression over time
 - ▶ validated using reference compounds
 - ▶ ion channel assays validated for patch clamp
- Available as off-the-shelf products or as part of contract research projects at Axxam
- Expert technical support
- Assays details can be provided upon request



| Assay Portfolio (July 2017) | | |
|--------------------------------------|------------|------|
| Protein class | No. Assays | Page |
| GPCRs | 58 | 2-3 |
| Ion Channels | 39 | 4-5 |
| Transporters | 19 | 6 |
| NHRs | 5 | 7 |
| Enzymes | 7 | 7 |
| Cytokine Receptors | 1 | 7 |
| Exchangers | 3 | 7 |
| Toll-Like Receptors | 3 | 8 |
| mRNA Post-Transcriptional Regulation | 1 | 8 |
| Tyrosine Kinase Receptor | 2 | 8 |

Custom Assay Development

Axxam undertakes custom assay development projects. Our highly experienced team has developed numerous cell-based assays using cutting-edge technologies, including difficult targets that other groups have found intractable. Axxam’s proprietary technologies may help you to circumvent IP restrictions on your target of interest. Delivery time of a new assay in a 384-well plate-adapted format can be as little as 4 months.



Assay List

| Target Class: GPCRs | | | |
|---------------------------|-------------------------|--|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Adenosine receptors | ADORA1 | Adenosine A1 receptor | 134 |
| | Adora1 NEW! | Mouse adenosine A1 receptor | 11539 |
| | Adora1 NEW! | Rat adenosine A1 receptor | 29290 |
| | ADORA2A | Adenosine A2a receptor | 135 |
| | Adora2a NEW! | Mouse adenosine A2a receptor | 11540 |
| | Adora2a NEW! | Rat adenosine A2a receptor | 25369 |
| | ADORA2B NEW! | Adenosine A2b receptor | 136 |
| | Adora2b NEW! | Mouse adenosine A2b receptor | 11541 |
| | Adora2b NEW! | Rat adenosine A2b receptor | 29316 |
| | ADORA3 NEW! | Adenosine A3 receptor | 140 |
| | Adora3 NEW! | Mouse adenosine A3 receptor | 11542 |
| Adrenergic receptors | ADRA2A | Adrenergic, alpha-2A-, receptor | 150 |
| | ADRA2C | Adrenergic, alpha-2C-, receptor | 152 |
| Bile acids receptors | GPBAR1 | G protein coupled bile acid receptor 1 -TGR5 | 151306 |
| Bradykinin receptors | BDKRB1 | Bradykinin receptor B1 | 623 |
| | Bdkrb1 (<i>rat</i>) | Rat bradykinin receptor 1 | 81509 |
| | BDKRB2 | Bradykinin receptor B2 | 624 |
| Cannabinoid receptors | CNR1 | Cannabinoid receptor 1 | 1268 |
| | CNR2 | Cannabinoid receptor 2 | 1269 |
| Chemokine (CXC) receptors | CCR2 | Chemokine (C-C motif) receptor 2 | 1231 |
| | CCR3 | Chemokine (C-C motif) receptor 3 | 1232 |
| | CCRL1 NEW! | Chemokine (C-C motif) receptor-like 1 | 51554 |
| | CCR5 NEW! | Chemokine (C-C motif) receptor 5 | 1234 |
| | CX3CR1 | Chemokine (C-X3-C motif) receptor 1 | 1524 |
| | Cx3cr1 (<i>mouse</i>) | Mouse chemokine (C-X3-C motif) receptor 1 | 13051 |
| | Cx3cr1 (<i>rat</i>) | Rat chemokine (C-X3-C motif) receptor 1 | 171056 |
| | CXCR1 | Interleukin 8 receptor, alpha | 3577 |
| | CXCR2 | Interleukin 8 receptor, beta | 3579 |
| Chemokine (CXC) receptors | CXCR3 | CXC chemokine receptor 3 | 2833 |
| | CMKLR1 | Chemokine-Like Receptor 1 - ChemR23 | 1240 |

Please be aware that provision of the above listed assays may require third party licenses. All products are for research use only.

Assay List

| Target Class: GPCRs (continued) | | | |
|--|--|--|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Cholinergic receptors | CHRM2 | Cholinergic receptor, muscarinic 2 | 1129 |
| Class Frizzled GPCRs | Smo (<i>endogenous - mouse</i>) NEW! | Mouse smoothed homolog (Drosophila) | 319757 |
| Cholecystokinin receptors | CCKAR | Cholecystokinin A receptor | 886 |
| Complement component receptors | C5aR1 | Complement component 5a receptor 1 | 728 |
| Dopamine receptors | DRD1 | Dopamine receptor D1 | 1812 |
| | DRD2 | Dopamine receptor D2 | 1813 |
| | DRD3 | Dopamine receptor D3 | 1814 |
| Fatty acid receptors | GPR119 | G protein-coupled receptor 119 | 139760 |
| | FFAR1 | Free fatty acid receptor 1, GPR40 | 2864 |
| | FFAR2 | Free fatty acid receptor 2, GPR43 | 2867 |
| Formyl peptide receptors | FPRL1 | FPRL1, formyl peptide receptor-like 1 | 2358 |
| | FPR1 | Formyl peptide receptor-1 | 2357 |
| Galanin receptors | GALR2 | Galanin Receptor 2 | 8811 |
| Ghrelin | GHSR | Growth hormone secretagogue receptor | 2693 |
| Glucagon receptors | GCGR | Glucagon receptor | 2642 |
| | GLP1R | Glucagon-like peptide 1 receptor | 2740 |
| | Glp1r (<i>rat</i>) | Rat glucagon-like peptide 1 receptor | 25051 |
| Glutamate receptor | GRM1 NEW! | Glutamate receptor metabotropic 1 | 2911 |
| Kynurenic acid receptor | GPR35 | G protein-coupled receptor 35 | 2859 |
| Leukotriene receptors | LTB4R | Leukotriene B4 receptor | 1241 |
| Lysophosphatidic acid receptors | LPAR5 | Lysophosphatidic acid receptor 5, GPR93 | 57121 |
| Neuropeptides receptor | NPY2R | Neuropeptide Y receptor 2 | 4887 |
| Prokineticin receptors | PROKR1 (GPR73) | Prokineticin receptor 1 | 10887 |
| | PROKR2 (GPR73L1) | Prokineticin receptor 2 | 128674 |
| Prostanoid receptors | PTGDR2 | GPR44, CRTH2, DP2, Prostaglandin D2 receptor | 11251 |
| Protease activated receptors | F2RL3 | PAR4, Coagulation factor II (thrombin) receptor-like 3 | 9002 |
| Serotonin receptor | HTR2A | Serotonin 5-HT-2A receptor | 3356 |
| Sphingosine-1 phosphate | S1pr3 (<i>mouse</i>) | <i>Mus musculus</i> Sphingosine-1-phosphate receptor 3 | 13610 |

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Assay List

| Target Class: Ligand Gated Ion Channels | | | |
|--|-------------------------------|--|--------------------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Ligand gated cationic channels | P2RX1 | Purinergic receptor P2X, ligand-gated ion channel, 1 | 5023 |
| | P2rx1 (<i>mouse</i>) | Mouse purinergic receptor P2X, ligand-gated ion channel, 1 | 18436 |
| | P2RX2/P2RX3 | Heteromeric P2X2/P2X3 receptor | 22953 - 5024 |
| | P2RX3 | Purinergic receptor P2X, ligand-gated ion channel, 3 | 5024 |
| | P2rx3 (<i>rat</i>) | Rat purinergic receptor P2X, ligand-gated ion channel, 3 | 81739 |
| | P2RX4 | Purinergic receptor P2X, ligand-gated ion channel, 4 | 5025 |
| | P2rx4 (<i>mouse</i>) | Mouse purinergic receptor P2x ligand-gated ion channel, 4 | 18438 |
| | P2rx7 (<i>rat</i>) | Rat purinergic receptor P2X, ligand-gated ion channel, 7 | 29665 |
| | P2rx7 (<i>mouse</i>) | Mouse purinergic receptor P2X, ligand-gated ion channel, 7 | 18439 |
| Chloride channels | GABRA1-GABRB1-GABRG2 | Gamma-aminobutyric acid (GABA) A receptor, alpha 1, beta 1, gamma 2 | 2554 - 2560 - 2566 |
| | GLRA1 | Glycine receptor, alpha 1 | 2741 |
| Transient receptor potential channels | TRPA1 | ANKTM1, Transient receptor potential cation channel subfamily A member 1 | 8989 |
| | TRPC3 | Transient receptor potential cation channel, subfamily C, member 3 | 7222 |
| | TRPC5 | Transient receptor potential cation channel, subfamily C, member 5 | 7224 |
| | TRPC6 | Transient receptor potential cation channel, subfamily C, member 6 | 7225 |
| | TRPC7 | Transient receptor potential cation channel , subfamily C, member 7 | 57113 |
| | TRPM2 | Transient receptor potential cation channel, subfamily M, member 2 | 7226 |
| | TRPM5 | Transient receptor potential cation channel, subfamily M, member 5 | 29850 |
| | TRPM7 | Transient receptor potential cation channel, subfamily M, member 7 | 54822 |
| | TRPM8 | Transient receptor potential cation channel, subfamily M, member 8 | 79054 |
| | TRPV1 | Transient receptor potential cation channel, subfamily V, member 1 | 7442 |

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| Target Class: Voltage-Gated Ion Channels | | | |
|--|--|--|--------------|
| Sub-family | Symbol | Aliases / Other Designations | GenelD |
| Voltage gated Na ⁺ channels | SCN5A (Nav 1.5) NEW! | Na ⁺ channel, voltage-gated, type V, alpha subunit | 6331 |
| | SCN9A (Nav1.7) | Na ⁺ channel, voltage-gated, type IX, alpha subunit | 6335 |
| Voltage gated K ⁺ channels | KCNA3 (Kv1.3) | K ⁺ voltage-gated channel, Shaker-related subfamily A, member 3 | 3738 |
| | KCNA5 (Kv1.5) | K ⁺ voltage-gated channel, Shaker-related subfamily A, member 5 | 3741 |
| | KCNB1 (Kv2.1) | K ⁺ voltage-gated channel, Shab-related subfamily B, member 1 | 3745 |
| | KCNQ2/KCNQ3 (Kv7.2/Kv7.3) NEW! | Heteromeric Potassium voltage-gated channel subfamily Q member 2; potassium voltage-gated channel subfamily Q member 3 | 3785 - 3786 |
| Inwardly rectifying K ⁺ channels | KCNJ4 (Kir 2.3) | K ⁺ inwardly-rectifying channel, subfamilyJ, member 4 | 3761 |
| Voltage gated Ca ²⁺ channels | CACNA1C (Cav 1.2) | Ca ²⁺ channel, voltage-dependent, L type, alpha 1C subunit | 775 |
| | CACNA1D (Cav1.3) | Ca ²⁺ channel, voltage-dependent, L type, alpha 1D subunit | 776 |
| | CACNA1B (Cav 2.2) <i>endogenous</i> NEW! | Ca ²⁺ channel, voltage-dependent, N type, alpha 1B subunit | 774 |
| | CACNA1I (Cav 3.3) NEW! | Ca ²⁺ channel, voltage-dependent, T type, alpha 1I subunit | 8911 |
| Store-operated Ca ²⁺ channels | CRAC | ORAI1(calcium release-activated calcium modulator 1) + STIM-1 (stromal interaction molecule 1) | 84876 - 6786 |
| Calcium activated Cl ⁻ channels | TMEM16A | Trans-membrane protein 16A (Cl channel) | 55107 |
| Calcium activated K ⁺ channels | KCNN3 | Potassium intermediate/small conductance calcium-activated channel, subfamily N, member 3 | 3782 |
| | KCNN4 | Potassium channel, calcium activated intermediate/small conductance subfamily N alpha, member 4 | 3783 |
| | KCNN4 (<i>endogenous</i>) | Potassium channel, calcium activated intermediate/small conductance subfamily N alpha, member 4 | 3783 |
| K ⁺ /Na ⁺ hyperpolarization-activated CNG channels | HCN2 | Hyperpolarization activated cyclic nucleotide-gated potassium channel 2 | 610 |
| | HCN4 | Hyperpolarization activated cyclic nucleotide-gated potassium channel 4 | 10021 |

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Assay List

| Target Class: Transporters | | | |
|-----------------------------------|--|--|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| ATP binding cassette | MRP4 (ABCC4) | ATP-binding cassette, sub-family C (CFTR/MRP), member 4 | 10257 |
| Glucose transporters | Slc2a1 (GLUT1-rat) | Slc2a1 solute carrier family 2 (facilitated glucose transporter), member 1 | 24778 |
| | Slc2a2 (GLUT2-rat) | Slc2a2 solute carrier family 2 (facilitated glucose transporter), member 2 | 25351 |
| | Slc2a3 (GLUT3-rat) | Slc2a3 solute carrier family 2 (facilitated glucose transporter), member 3 | 25551 |
| | SLC2A1 (GLUT1-canine) | SLC2A1 solute carrier family 2 (facilitated glucose transporter), member 1 | 482437 |
| | SLC2A2 (GLUT2-canine) | SLC2A2 solute carrier family 2 (facilitated glucose transporter), member 2 | 488165 |
| | SLC2A3 (GLUT3-canine) | SLC2A2 solute carrier family 2 (facilitated glucose transporter), member 3 | 403997 |
| Neurotransmitter transporters | SLC6A3 | DAT, Dopamine transporter | 6531 |
| | SLC6A1 | GAT1, GABA transporter 1 | 6529 |
| | SLC6A11 | GAT3, GABA transporter 3 | 6538 |
| | SLC6A9 | GLYT1, Glycin transporter 1 | 6536 |
| | SLC6A5 | GLYT2, Glycin transporter 2 | 9152 |
| | SLC6A2 | NET, Norepinephrine transporter | 6530 |
| Sodium phosphate cotransporters | SLC34A1 (NPT2a) | Solute carrier family 34 (sodium phosphate), member 1 | 6569 |
| | Slc34a1 (NPT2a rat) | Solute carrier family 34 (sodium phosphate), member 1 | 25548 |
| | SLC34A1 (NPT2a dog) | Solute carrier family 34 (sodium phosphate), member 1 | 479275 |
| | SLC34A2 (NPT2b) | Solute carrier family 34 (sodium phosphate), member 2 | 10568 |
| | SLC34A3 (NPT2c mutant) | Solute carrier family 34 (sodium phosphate), member 3 | 142680 |
| ----- | SLC40A1 (FPN1) <small>NEW!</small> | Solute carrier family 40 | 30061 |

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Assay List

| Target Class: Nuclear Hormone Receptors | | | |
|---|--------|--|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Nuclear hormone receptors | NR3C1 | GR, Glucocorticoid receptor, nuclear receptor subfamily 3, group C, member 1 | 2908 |
| Nuclear hormone receptors | NR3C2 | MR, mineralcorticoid receptor, nuclear receptor subfamily 3, group C, member 2 | 4306 |
| | PPARA | PPAR-alpha, Peroxisome proliferator-activated receptor alpha | 5465 |
| | PPARD | PPAR-delta, Peroxisome proliferator-activated receptor delta | 5467 |
| | PGR | Progesteron receptor | 5241 |

| Target Class: Enzymes | | | |
|-----------------------|---|---|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Adenylate cyclase | ADCY5 NEW! | Adenylate cyclase 5 | 111 |
| | ADCY6 NEW! | Adenylate cyclase 6 | 112 |
| Nitric oxide synthase | NOS3 NEW! | Nitric oxide synthase 3 (endothelial cell) | 4846 |
| | NOS2 NEW! | Inducible nitric oxide synthase (type II) | 4843 |
| Cysteine protease | MALT1 NEW! | Mucosa associated lymphoid tissue Lymphoma Translocation gene 1 | 10892 |
| Synthase kinase | GSK3β NEW! | Human glycogen synthase kinase 3 beta | 2932 |
| | GSK3β (<i>endogenous</i>) NEW! | Human glycogen synthase kinase 3 beta | 2932 |

| Target Class: Cytokine Receptors | | | |
|----------------------------------|--|--------------------------------------|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Cytokine receptort | TNFR (<i>endogenous</i>) NEW! | Tumor necrosis factor alpha receptor | 7132 |

| Target Class: Exchangers | | | |
|--|-----------------|---|--------|
| Sub-family | Symbol | Aliases / Other Designations | GeneID |
| Na ⁺ /K ⁺ /Ca ²⁺ exchangers | SLC24A3 (NCKX3) | Solute carrier family 24 (sodium/potassium/calcium exchanger), member 3 | 57419 |
| Na ⁺ /Ca ²⁺ exchangers | SLC8A1 (NCX1) | Solute carrier family 8 (sodium/calcium exchanger), member 1 | 6546 |
| | SLC8A2 (NCX2) | Solute carrier family 8 (sodium/calcium exchanger), member 2 | 6543 |

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Assay List

Target Class: Toll-Like Receptors

| Sub-family | Symbol | Aliases / Other Designations | GeneID |
|----------------------|--------------------------------|------------------------------|--------|
| Toll-like receptor 4 | TLR4 (endogenous) | TOLL; CD284; hToll; ARMD10 | 7099 |
| | <i>Tlr4</i> (mouse-endogenous) | Mouse toll-like receptor 4 | 21898 |
| Toll-like receptor 9 | TLR9 | CD289 | 54106 |

Target Class: mRNA Post-Transcriptional Regulation

| Sub-family | Symbol | Aliases / Other Designations | GeneID |
|--------------------------------------|---------------------------------|--|--------|
| mRNA post-transcriptional regulation | NOS3 <small>NEW!</small> | Nitric oxide synthase 3 (endothelial cell) | 4846 |

Target Class: Tyrosine Kinase Receptors

| Sub-family | Symbol | Aliases / Other Designations | GeneID |
|--------------------------|--|---|--------|
| Tyrosine kinase receptor | Ntrk1 (<i>endogenous - rat</i>) <small>NEW!</small> | Ntrk1 neurotrophic tyrosine kinase, receptor, type 1 (<i>Rattus norvegicus</i>) | 59109 |
| | NTRK2 <small>NEW!</small> | Neurotrophic tyrosine kinase, receptor, type 2 | 4915 |

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