

Product development pipeline

Key

| | | | |
|-------|--|-----------|---|
| † | In-license or other alliance relationship with third party | BLA | Biological License Application |
| S | Month of first submission | MAA | Marketing Authorisation Application (Europe) |
| A | Month of first regulatory approval (for MAA, this is the first EU approval letter) | NDA | New Drug Application (USA) |
| AL/CR | Month Approvable or Complete Response Letter received – indicates that ultimately approval can be given subject to resolution of outstanding queries | Phase I | Evaluation of clinical pharmacology, usually conducted in volunteers |
| PO | Month of EU Positive Opinion | Phase II | Determination of dose and initial evaluation of efficacy, conducted in a small number of patients |
| TA | FDA Tentative Approval | Phase III | Large comparative study (compound versus placebo and/or established treatment) in patients to establish clinical benefit and safety |

MAA and NDA/BLA Regulatory milestones shown in the table below are those that have been achieved. Future submission dates are not included in this list.

| Compound | Type | Indication | Phase | Achieved Regulatory review milestones | |
|---------------------------------------|---|--|-----------|---------------------------------------|------------------|
| | | | | MAA | NDA/BLA |
| Biopharmaceuticals | | | | | |
| 933776 | monoclonal antibody | Alzheimer's disease | I | | |
| 1070806 | monoclonal antibody | metabolic disease | I | | |
| 1223249 | monoclonal antibody | amyotrophic lateral sclerosis | I | | |
| 2401502† | domain antibody targeted multi-component vaccine | malignant melanoma | I | | |
| APN01† | recombinant human angiotensin converting enzyme 2 | acute respiratory distress syndrome | I | | |
| iboctadekin† (+ Doxil) | IL18 immunomodulator (+ topoisomerase II inhibitor) | ovarian cancer | I | | |
| iboctadekin† (+ rituximab) | IL18 immunomodulator (+ anti-CD20 monoclonal antibody) | follicular lymphoma | I | | |
| otelixizumab† | anti-CD3 monoclonal antibody (s.c.) | type 1 diabetes | I | | |
| 249320 | monoclonal antibody | stroke | II | | |
| 315234 | monoclonal antibody | rheumatoid arthritis | II | | |
| 679586 | monoclonal antibody | severe asthma | II | | |
| Arzerra (ofatumumab)† | anti-CD20 human monoclonal antibody | follicular lymphoma (relapsed patients) | II | | |
| Benlysta (belimumab)† | anti-B lymphocyte stimulator monoclonal antibody (s.c.) | systemic lupus erythematosus | II | | |
| mepolizumab | anti-IL5 monoclonal antibody | severe asthma & nasal polyposis | II | | |
| ofatumumab† | anti-CD20 human monoclonal antibody | multiple sclerosis | II | | |
| Arzerra (ofatumumab)† | anti-CD20 human monoclonal antibody | chronic lymphocytic leukaemia, first line therapy & use in relapsed patients | III | | |
| Arzerra (ofatumumab)† | anti-CD20 human monoclonal antibody | diffuse large B cell lymphoma (relapsed patients) | III | | |
| Arzerra (ofatumumab)† | anti-CD20 human monoclonal antibody | follicular lymphoma (refractory patients) | III | | |
| Benlysta (belimumab)† | anti-B lymphocyte stimulator monoclonal antibody (i.v.) | systemic lupus erythematosus | III | | |
| denosumab† | anti-receptor activator for nuclear kappa (RANK) ligand human monoclonal antibody | bone metastatic disease | III | | |
| denosumab† | anti-RANK ligand human monoclonal antibody | hormone ablative/chemotherapy bone loss in cancer patients | III | | |
| ofatumumab† | anti-CD20 human monoclonal antibody | rheumatoid arthritis | III | | |
| otelixizumab† | anti-CD3 monoclonal antibody (i.v.) | type 1 diabetes | III | | |
| Syncria† | glucagon-like peptide 1 agonist | type 2 diabetes | III | | |
| Prolia (denosumab)† | anti-RANK ligand human monoclonal antibody | post-menopausal osteoporosis | Submitted | PO:Dec09 | N/A |
| Arzerra (ofatumumab)† | anti-CD20 human monoclonal antibody | chronic lymphocytic leukaemia (refractory patients) | Approved | PO:Jan10 | A:Oct09 |
| Cardiovascular & Metabolic | | | | | |
| 1278863 | prolyl hydroxylase inhibitor | anaemia | I | | |
| 1521498 | mu-opioid receptor inverse agonist | obesity | I | | |
| 1614235† | sodium dependent glucose transport (SGLT1) inhibitor | type 2 diabetes | I | | |
| 2245840 | SIRT1 activator | sarcopaenia (also COPD & psoriasis) | I | | |
| 184072 | SIRT1 activator | type 2 diabetes (also haematologic cancers) | II | | |
| 256073 | high affinity nicotinic acid receptor (HM74A) agonist | dyslipidaemia | II | | |
| 557296 | oxytocin antagonist | premature ejaculation | II | | |
| 1292263 | gastrin-releasing peptide (GPR119) receptor agonist | type 2 diabetes | II | | |
| 1362885 | glycogen phosphorylase inhibitor | type 2 diabetes | II | | |
| 2245840 | SIRT1 activator | type 2 diabetes (also COPD & haematologic cancers) | II | | |
| losmapimod | p38 kinase inhibitor | cardiovascular disease (also COPD, pain & depression) | II | | |
| retosiban (221149) | oxytocin antagonist | threatened pre-term labour | II | | |
| rilapladib† | Lp-PLA2 inhibitor | atherosclerosis | II | | |
| Avandamet XR | PPAR gamma agonist + metformin | type 2 diabetes – extended release | III | N/A | |
| Avandia + simvastatin | PPAR gamma agonist + statin | type 2 diabetes | III | N/A | |
| darapladib† | Lp-PLA2 inhibitor | atherosclerosis | III | | |
| Arixtra | synthetic factor Xa inhibitor | treatment of acute coronary syndrome | Approved | A:Aug07 | AL:Feb07 & Sep07 |
| Avandia | PPAR gamma agonist | prevention of disease progression | Approved | A:Apr09 | A:Jul08 |

Product development pipeline

| Compound | Type | Indication | Phase | Achieved Regulatory review milestones | |
|--|---|--|-----------|---------------------------------------|----------|
| | | | | MAA | NDA/BLA |
| Infectious Diseases | | | | | |
| 932121 | plasmodium electron transport chain inhibitor | malaria | I | | |
| 945237 | topoisomerase II inhibitor | treatment of bacterial infections | I | | |
| 1322322 | novel class antibacterial agent | treatment of bacterial infections | I | | |
| <i>Relenza</i> [†] | neuraminidase inhibitor (i.v.) | treatment of influenza | II | | |
| sitamaquine | 8-aminoquinoline | treatment of visceral leishmaniasis | II | | N/A |
| tafenoquine [†] | 8-aminoquinoline | Plasmodium vivax malaria | II | | |
| Neurosciences | | | | | |
| 586529 [†] | CRF1 antagonist | depression & anxiety | I | | |
| 618334 | dopamine D3 antagonist | drug dependency | I | | |
| 1014802 | sodium channel blocker | bipolar disorder | I | | |
| 1034702 | muscarinic acetylcholine agonist | dementia | I | | |
| 1144814 | NK1/NK3 antagonist | schizophrenia | I | | |
| 163090 | 5HT1 antagonist | depression & anxiety | II | | |
| 239512 | histamine H3 antagonist | dementia & schizophrenia | II | | |
| 561679 [†] | CRF1 antagonist | depression & anxiety | II | | |
| 649868 [†] | orexin antagonist | sleep disorders | II | | |
| 742457 | 5HT6 antagonist | dementia | II | | |
| 2402968 (PRO051) [†] | antisense oligonucleotide | Duchenne muscular dystrophy | II | | |
| firategrast [†] | dual alpha4 integrin antagonist (VLA4) | multiple sclerosis | II | | |
| <i>Horizant</i> (1838262) [†] | voltage-gated calcium channel modulator | migraine prophylaxis | II | | |
| <i>Horizant</i> (1838262) [†] | voltage-gated calcium channel modulator | neuropathic pain | II | | |
| losmapimod | p38 kinase inhibitor | pain (also cardiovascular disease, COPD & depression) | II | | |
| losmapimod | p38 kinase inhibitor | depression (also cardiovascular disease, COPD & pain) | II | | |
| orvepitant | NK1 antagonist | depression & anxiety | II | | |
| almorexant [†] | orexin antagonist | insomnia | III | | |
| <i>Horizant</i> (1838262) ^{†*} | voltage-gated calcium channel modulator | restless legs syndrome | Submitted | | CR:Feb10 |
| retigabine [†] | neuronal potassium channel opener | epilepsy – partial seizures | Submitted | S:Oct09 | S:Oct09 |
| <i>Lamictal XR</i> | sodium channel inhibitor | epilepsy – partial generalised tonic-clonic seizures, once-daily | Approved | N/A | A:Jan10 |
| <i>Lamictal XR</i> | sodium channel inhibitor | epilepsy – partial seizures, once-daily | Approved | N/A | A:May09 |
| Oncology | | | | | |
| 2110183 | AKT protein kinase inhibitor | cancer | I | | |
| 2118436 | BRaf protein kinase inhibitor | cancer | I | | |
| 2126458 | Pi3 kinase inhibitor | cancer | I | | |
| 2141795 | AKT protein kinase inhibitor | cancer | I | | |
| 184072 | SIRT1 activator | haematologic cancers (also type 2 diabetes) | II | | |
| 1120212 [†] | mitogen-activated protein kinase inhibitor (MEK1/2) | cancer | II | | |
| 2285921 [†] | thrombopoietin receptor agonist | thrombocytopenia | II | | |
| foretinib (1363089) [†] | mesenchymal-epithelial transition factor (C-met) kinase inhibitor | papillary renal cell carcinoma and other cancers | II | | |
| <i>Revolade/Promacta</i> [†] | thrombopoietin receptor agonist | oncology-related thrombocytopenia | II | | |
| <i>Tyverb/Tykerb</i> | Her2 and EGFR dual kinase inhibitor | head & neck squamous cell carcinoma (unresectable disease) | II | | |
| <i>Votrient</i> (pazopanib) | multi-kinase angiogenesis inhibitor | breast cancer, adjuvant therapy | II | | |
| <i>Votrient</i> (pazopanib) | multi-kinase angiogenesis inhibitor | non-small cell lung cancer, first line & adjuvant therapy | II | | |
| <i>Votrient</i> (pazopanib) | multi-kinase angiogenesis inhibitor | ovarian cancer, maintenance therapy | III | | |
| <i>Revolade/Promacta</i> [†] | thrombopoietin receptor agonist | chronic liver disease induced thrombocytopenia | III | | |
| <i>Revolade/Promacta</i> [†] | thrombopoietin receptor agonist | hepatitis C induced thrombocytopenia | III | | |
| <i>Tyverb/Tykerb</i> | Her2 and EGFR dual kinase inhibitor | breast cancer, adjuvant therapy | III | | |
| <i>Tyverb/Tykerb</i> | Her2 and EGFR dual kinase inhibitor | gastric cancer | III | | |
| <i>Tyverb/Tykerb</i> | Her2 and EGFR dual kinase inhibitor | head & neck squamous cell carcinoma (resectable disease) | III | | |
| <i>Votrient</i> (pazopanib) | multi-kinase angiogenesis inhibitor | sarcoma | III | | |
| <i>Votrient</i> (pazopanib) + <i>Tyverb/Tykerb</i> | multi-kinase angiogenesis inhibitor + Her2 and EGFR dual kinase inhibitor | inflammatory breast cancer | III | | |
| <i>Avodart</i> | 5-alpha reductase inhibitor | reduction in the risk of prostate cancer | Submitted | S:Sep09 | |
| <i>Duodart</i> (<i>Avodart</i> + alpha blocker) | 5-alpha reductase inhibitor + alpha blocker | benign prostatic hyperplasia – fixed dose combination | Submitted | S:Dec08 | TA:Jan10 |
| <i>Revolade/Promacta</i> [†] | thrombopoietin receptor agonist | idiopathic thrombocytopenic purpura | Approved | PO:Dec09 | A:Nov08 |
| <i>Tyverb/Tykerb</i> | Her2 and EGFR dual kinase inhibitor | breast cancer, first line therapy | Approved | PO:Feb10 | A:Jan10 |
| <i>Votrient</i> (pazopanib) | multi-kinase angiogenesis inhibitor | renal cell cancer | Approved | PO:Feb10 | A:Oct09 |
| Ophthalmology | | | | | |
| pazopanib | multi-kinase angiogenesis inhibitor (oral) | age-related macular degeneration (also cancer indications) | I | | |
| pazopanib | multi-kinase angiogenesis inhibitor (eye drops) | age-related macular degeneration | II | | |

* See Note 40 to the financial statements, 'Post balance sheet events'.

Product development pipeline

| Compound | Type | Indication | Phase | Achieved Regulatory review milestones | |
|--|--|--|-----------|---------------------------------------|------------------|
| | | | | MAA | NDA/BLA |
| Respiratory & Immuno-inflammation | | | | | |
| 610677 | p38 kinase inhibitor (inhaled) | COPD | I | | |
| 681323 | p38 kinase inhibitor (i.v.) | acute lung injury & acute respiratory distress syndrome | I | | |
| 1325756 | chemokine receptor (CXCR2) antagonist | COPD | I | | |
| 2245840 | SIRT1 activator | COPD & psoriasis (also type 2 diabetes & sarcopaenia) | I | | |
| CCX025 [†] | CCR9 antagonist | Crohn's disease | I | | |
| 256066 | PDE4 inhibitor (inhaled) | COPD | II | | |
| 573719 | muscarinic acetylcholine antagonist | COPD | II | | |
| 573719 + 642444 [†] | muscarinic acetylcholine antagonist + long-acting beta2 agonist | COPD | II | | |
| 656933 | chemokine receptor (CXCR2) antagonist | cystic fibrosis | II | | |
| 685698 | glucocorticoid agonist | asthma | II | | |
| 705498 | transient receptor potential vanilloid (TRPV1) antagonist (intranasal) | non-allergic rhinitis | II | | |
| 870086 | novel glucocorticoid agonist (inhaled) | asthma | II | | |
| 961081 [†] | muscarinic antagonist, beta2 agonist | COPD | II | | |
| 962040 | motilin receptor agonist | delayed gastric emptying | II | | |
| 1399686 | anti-inflammatory macrolide conjugate (oral) | inflammatory bowel disease | II | | |
| 1605786 (CCX282) [†] | CCR9 antagonist | Crohn's disease | II | | |
| 2190915 [†] | 5-lipoxygenase-activating protein (FLAP) inhibitor | asthma | II | | |
| losmapimod | p38 kinase inhibitor (oral) | COPD (also cardiovascular disease, pain & depression) | II | | |
| Relovair (642444 [†] + 685698) | long-acting beta2 agonist + glucocorticoid agonist | asthma | II | | |
| Relovair (642444 [†] + 685698) | long-acting beta2 agonist + glucocorticoid agonist | COPD | III | | |
| 642444 [†] | long-acting beta2 agonist | COPD | III | | |
| Paediatric Vaccines | | | | | |
| Hexavalent combination vaccine | conjugated | Neisseria meningitis C, Haemophilus influenzae type b, diphtheria, tetanus, pertussis and poliomyelitis disease prophylaxis | I | | |
| Heptavalent combination vaccine | conjugated | Neisseria meningitis C, Haemophilus influenzae type b, diphtheria, Hepatitis B, tetanus, pertussis and poliomyelitis disease prophylaxis | II | | |
| S. pneumoniae paediatric next generation | recombinant – conjugated | Streptococcus pneumoniae disease prophylaxis | II | | |
| Mosquirix | recombinant | malaria prophylaxis (Plasmodium falciparum) | III | | N/A |
| Nimenrix (MenACWY-TT) | conjugated | Neisseria meningitis groups A, C, W & Y disease prophylaxis | III | | |
| MenHibrix (Hib-MenCY-TT) | conjugated | Neisseria meningitis groups C & Y & Haemophilus influenzae type b disease prophylaxis | Submitted | | S:Aug09 |
| Hiberix | conjugated | paediatric booster for Haemophilus influenzae type b | Approved | A:Nov07 | A:Aug09 |
| Synflorix | conjugated | Streptococcus pneumoniae disease prophylaxis in infants & children | Approved | A:Mar09 | N/A |
| Other Vaccines | | | | | |
| Alzheimer's disease | conjugated | treatment of Alzheimer's disease | I | | |
| Cytomegalovirus | recombinant | cytomegalovirus infection prophylaxis | I | | |
| HIV | recombinant | HIV disease prophylaxis/immunotherapy | I | | |
| NTHi-Pneumo | recombinant | Streptococcus pneumoniae and Haemophilus influenzae disease prophylaxis in adults | I | | |
| Dengue fever | attenuated tetravalent | dengue fever prophylaxis | II | | |
| Tuberculosis | recombinant | tuberculosis prophylaxis | II | | |
| Zoster | recombinant | Herpes Zoster prevention | II | | |
| New generation flu vaccine | inactivated split – trivalent | seasonal influenza prophylaxis for the elderly | III | | |
| Simplrix | recombinant | genital herpes prophylaxis | III | | |
| Flu pandemic & pre-pandemic [†] | H5N1 inactivated split – monovalent (Quebec) | pandemic influenza prophylaxis | Submitted | S:Jul09 | S:Jun09 (Canada) |
| Arepanrix (Flu pandemic) [†] | H1N1 inactivated split adjuvanted – monovalent (Quebec) | pandemic influenza prophylaxis (emergency use) | Approved | PO:Jan10 | A:Oct09 (Canada) |
| Cervarix [†] | recombinant | cervical dysplasia and cancer prophylaxis caused by HPV 16/18 | Approved | A:Sep07 | A:Oct09 |
| Influenza A (H1N1) 2009 monovalent vaccine (Flu pandemic) [†] | H1N1 inactivated split – monovalent (Quebec) | pandemic influenza A (H1N1) 2009 prophylaxis (emergency use) | Approved | | A:Nov09 |
| Pandemrix (Flu pandemic) [†] | H1N1 inactivated split adjuvanted – monovalent (Dresden) | pandemic influenza prophylaxis | Approved | A: Sep09 | |

Product development pipeline

| Compound | Type | Indication | Phase | Achieved Regulatory review milestones | |
|---|--|--|-----------|---------------------------------------|---------|
| | | | | MAA | NDA/BLA |
| Antigen Specific Cancer Immunotherapeutic (ASCI) | | | | | |
| WT1 | recombinant | treatment of acute myelogenous leukaemia | II | | |
| MAGE-A3 | recombinant | treatment of melanoma | III | | |
| MAGE-A3 | recombinant | treatment of non-small cell lung cancer | III | | |
| Dermatology (Stiefel), late stage assets only | | | | | |
| <i>Duac</i> low dose | clindamycin/benzoyl peroxide gel | acne vulgaris | III | | |
| tazarotene foam | retinoid foam | acne vulgaris | III | | |
| calcipotriene | vitamin D3 analog | mild to moderate plaque psoriasis | Submitted | | S:Dec09 |
| itraconazole tablets | oral anti-fungal | onychomycosis | Submitted | | S:Mar09 |
| <i>Veltin</i> | antibiotic/retinoid gel | acne vulgaris | Submitted | | S:Oct09 |
| HIV (ViiV Healthcare) | | | | | |
| 1265744 [†] | HIV integrase inhibitor | HIV infections | II | | |
| 1349572 [†] | HIV integrase inhibitor | HIV infections | II | | |
| 2248761 (IDX899) [†] | non-nucleotide reverse transcriptase inhibitor | HIV infections | II | | |
| PF-232798 | CCR5 antagonist | HIV infections | II | | |
| UK-453061 | non-nucleotide reverse transcriptase inhibitor | HIV infections | II | | |
| <i>Selzentry/Celsentri</i> | CCR5 antagonist | HIV infection, use in treatment naive patients | Approved | | A:Nov09 |

Option-based alliances with third parties that include assets in Phase I and Phase II development

| Company | Disease Area | Phase |
|-------------------------|-------------------------------|--------|
| Anacor Pharmaceuticals | anti-bacterial | I |
| ChemoCentryx | inflammatory disease* | I & II |
| Concert Pharmaceuticals | HIV (protease inhibitor) | I |
| Galapagos | autoimmune disease | I |
| NeuroSearch | neuroscience (anxiety & pain) | I |
| OncoMed Pharmaceuticals | oncology | I |
| Prosensa Therapeutics | neuroscience | I |
| Ranbaxy Laboratories | respiratory | I |
| Theravance | gastrointestinal | I |

* Two assets