

28 Oct 2016 |

PIPELINE WATCH: Phase III Trials Start In Atypical HUS, Fabry Disease And Colorectal Cancer

by John Davis

Pipeline Watch has been updated to bring greater depth and detail to a potential therapeutic product's progress through the R&D pipeline. The table brings you a snapshot of selected late-stage clinical trial events in the pharma and biotech industries.

The table records clinical developments using data from Informa Pharma Intelligence's Biomedtracker. It lists drugs for which an important event was recorded between October 21 and October 27, 2016, divided by event type.

Events can include Phase II and Phase III trial initiations, development discontinuations, and the release of top-line and full clinical trial results. A brief summary of product approvals is also included.

A companion resource, The Pink Sheet's regulatory-focused FDA Performance Tracker, follows regulatory milestones such as new submissions and user fee calculations, complete response letters and breakthrough therapy designations.

PIPELINE WATCH – October 21 to October 27, 2016

| Lead company/partner | Compound | Indication | Comments |
|--|----------------------------------|--------------------------------|--|
| Phase III Suspended | | | |
| <i>Dipexium Pharmaceuticals Inc.</i> | <i>Locilex</i> (pexiganan) cream | diabetic foot ulcer infections | OneStep-1 and -2; did not meet primary endpoint. |
| <i>Inovio Pharmaceuticals Inc.</i> | VGX-3100 | cervical dysplasia | FDA clinical hold on proposed trial due to |

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| <u>AstraZeneca PLC</u> | durvalumab | head and neck cancer | concerns about delivery device. <u>FDA partial clinical hold due to bleeding events.</u> <u>New patient enrolment halted.</u> |
| Phase III Results | | | |
| <u>Janssen Pharmaceutical Cos. /Bayer AG</u> | Xarelto (rivaroxaban) | treating and preventing venous thromboembolism | Real world data confirms safety and efficacy. |
| <u>Sunovion Pharmaceuticals Inc.</u> | Latuda (lurasidone) | schizophrenia in adolescents | Safe and effective, supplemental NDA submitted. |
| <u>Vertex Pharmaceuticals Inc.</u> | Okambi (lumacaftor, ivacaftor) and Kalydeco (ivacaftor) | cystic fibrosis | They modify progression in long-term data. |
| <u>Chimerix Inc.</u> | brincidofovir | adenovirus infection | AdVise; viremia declined in blood cell transplant patients. |
| <u>Gilead Sciences Inc.</u> | Descovy (emtricitabine and tenofovir alafenamide) | HIVAIDS | Switching from Truvada (emtricitabine and tenofovir disoproxil fumarate) |
| Phase III Interim/Top-line Results | | | |
| <u>Merck & Co. Inc.</u> | Keytruda (pembrolizumab) | advanced bladder cancer | KeyNote-045; improved overall survival. |
| AstraZeneca PLC | Lynparza (olaparib) | ovarian cancer | <u>SOLO-2, Significant improvement in PFS.</u> <u>Pivotal study, showed equivalence to AbbVie's Humira.</u> |
| <u>Boehringer Ingelheim GMBH</u> | biosimilar adalimumab (BI 695501) | rheumatoid arthritis | |
| <u>ProMetic Life Sciences Inc. /Hematech Biotherapeutics Inc.</u> | plasma-derived plasminogen | plasminogen deficiency | US BLA filing to start within weeks. |
| <u>Eli Lilly & Co.</u> | Taltz (ixekizumab) | psoriatic arthritis | SPIRIT-P2; positive results, 2017 supplemental filings. |
| <u>Roche /Genentech Inc.</u> | Lucentis (ranibizumab) | polypoidal choroidal vasculopathy | EVEREST II; an additional indication. |

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| <u>Daiichi Sankyo Co. Ltd./Eli Lilly & Co.</u> | <i>Effient</i> (prasugrel) | ischemic stroke | PRASTO-1 and 2; an additional indication in Japanese patients. |
| <u>Aerie Pharmaceuticals Inc.</u> | <i>Rhopressa</i> (netarsudil) ophthalmic solution | glaucoma, ocular hypertension | Rocket 4; achieves endpoint, NDA to be resubmitted. |
| <u>GlaxoSmithKline PLC</u> | <i>Shingrix</i> vaccine | shingles | ZOSTER-004; supports flexible dosing, and using with flu vaccine. |
| Gilead Sciences Inc. | sofosbuvir, velpatasvir and voxilaprevir | hepatitis C | POLARIS-1,2,3,4; once daily single tablet. |
| <u>Theravance Biopharma Inc. /Mylan NV</u> | revefenacin | chronic obstructive pulmonary disease | Met primary endpoint and well tolerated. |
| <u>Alexion Pharmaceuticals Inc.</u> | ALXN1210 | atypical hemolytic uremic syndrome and paroxysmal nocturnal hemoglobinuria | A longer-acting anti-C5 antibody, given every eight weeks. |
| <u>Maruishi Pharmaceutical Co. Ltd./Faron Pharmaceuticals Oy</u> | <i>Traumakine</i> (FP-1201-lyo) | acute respiratory distress syndrome | A European study is already underway. |
| <u>Ultragenyx Pharmaceutical Inc. /Kyowa Hakko Kirin Co. Ltd.</u> | KRN23 | pediatric X-linked hypophosphatemia | A fully human IgG1 Mab. |
| <u>Protalix BioTherapeutics Inc.</u> | PRX-102 | Fabry disease | A modified human alpha-GAL-A protein. |
| <u>Sumitomo Dainippon Pharma Co. Ltd.</u> | napabucasin | colorectal cancer | The CanStem303C study. |
| <u>Aduro Biotech Inc.</u> | CRS-207, ADU-623 | ovarian, brain, and pancreatic cancer | <u>FDA partial clinical hold due to Listeria infection.</u> |
| GlaxoSmithKline PLC | losmapimod | chronic obstructive pulmonary disease | Development stopped by company. |
| <u>Minerva Neurosciences Inc. /Mitsubishi Tanabe Pharma Corp.</u> | MIN-101 | schizophrenia, negative symptoms | Six-month extension study; improved symptoms. |
| <u>ChemoCentryx Inc.</u> | avacopan (CCX168), a complement inhibitor | C3 glomerulopathy | A patient with this rare disease responded. |

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| <u>Shire PLC</u> | maribavir | CMV infection | Reduced viremia in transplant patients. |
| <u>Trevena Inc.</u> | oliceridine | pain | Safe and effective. |
| <u>Bristol-Myers Squibb Co.</u> | Opdivo (nivolumab) | heavily pretreated classical Hodgkin's lymphoma | CheckMate-205; safe and effective in an expanded cohort. |
| Phase II Completed | | | |
| Samumed | SM04554 | androgenetic alopecia | Safe and effective. |
| Phase II Interim/top-Line Results | | | |
| <u>OncoGenex Pharmaceuticals Inc./Ionis Pharmaceuticals Inc.</u> | apatorsen; an antisense heat shock protein 27 production inhibitor | metastatic bladder cancer | Borealis-2; positive survival results. |
| <u>Sanofi/Lexicon Pharmaceuticals Inc.</u> | sotagliflozin | type 1 diabetes | inTandem4; confirms Phase III dose. |
| <u>Windtree Therapeutics Inc.</u> | Aerosurf (lucinactant) | respiratory distress syndrome | In premature infants. |
| <u>ObsEva SA</u> | nolasiban (OBE001); oral oxytocin antagonist | in vitro fertilization | IMPLANT; proceeding to Phase III in Europe. |
| <u>Galapagos NV/AbbVie Inc.</u> | GLPG1837 | cystic fibrosis | SAPHIRA 2; well tolerated |
| <u>Allergan PLC/Motus Therapeutics Inc.</u> | relamorelin, a ghrelin agonist | diabetic gastroparesis | Safe and effective, in diabetes patients. |
| <u>Advaxis Inc.</u> | axalimogene filolisbac | cervical cancer | Increased overall survival rate |
| <u>DBV Technologies SA</u> | Viaskin Peanut | peanut allergy | OLFUS-VIPES; two year follow-up showed durable responses. |
| Gilead Sciences Inc. | selonsertib (GS-4997) | non-alcoholic steatohepatitis (NASH), pulmonary arterial hypertension, diabetic kidney disease | Showned antifibrotic activity. |
| Phase II Initiation | | | |
| <u>Targovax ASA</u> | ONCOS-102/GM-CSF gene therapy | malignant mesothelioma | Increases tumor infiltrating lymphocytes. |
| <u>Selecta Biosciences Inc.</u> | SEL-212 | gout | In refractory patients. |
| Stealth BioTherapeutics | elamipretide | congestive heart failure | The IDDEA-HF study. |

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| <u>Actelion Pharmaceuticals Ltd.</u> | ACT-541468 | insomnia | In adult patients. |
| Theranexus | THN102 | narcolepsy | Being compared with modafinil. |
| Sanifit | SNF472 | calciphylaxis | An orphan disease. |

Source: Source: Informa Pharma Intelligence's Biomedtracker.

Marketing Approvals – October 21 to October 27, 2016

| Lead Company | Partner Company | Drug | Indication | Market | Comments |
|---|--------------------------|-----------------------------|---|-------------|--|
| REGULATORY APPROVAL | | | | | |
| Merck & Co | - | Zinplava (bezolotoxumab) | recurrence of Clostridium difficile-associated diarrhea | US | <u>In patients receiving antibacterial drugs.</u> |
| <u>Recordati Industria Chimica & Farmaceutica SPA</u> | Apricus Biosciences Inc. | Vitaros (alprostadil) cream | erectile dysfunction | Greece | Launch expected in first half of 2017. |
| SUPPLEMENTAL REGULATORY APPROVAL | | | | | |
| Merck & Co | - | Keytruda (pembrolizumab) | first line non-small cell lung cancer | US | <u>For tumors with a high PD-L1 expression and no EGFR or ALK tumor aberrations.</u> |
| <u>Novartis AG</u> | - | Cosentyx (secukinumab) | psoriatic arthritis, ankylosing spondylitis | Switzerland | Targets IL-17. |

Source: Biomedtracker.