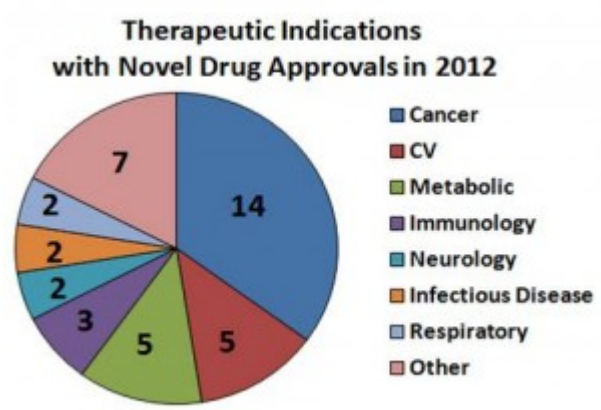
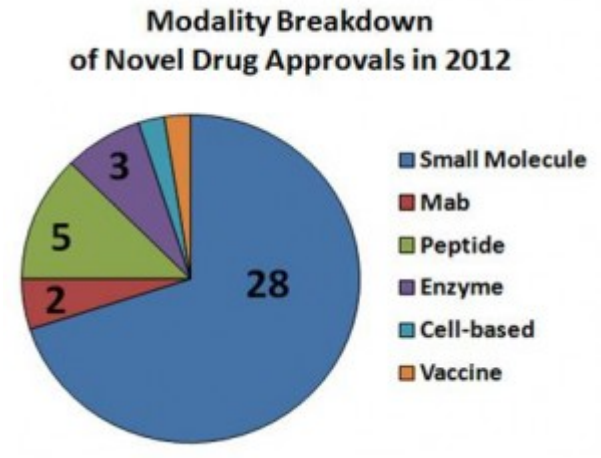
A Big Year for Novel Drugs Approvals

Inside BIO Industry Analysis

What was your top Biopharma highlight for 2012? If it wasn't the stellar move in the AMEX Biotech Index (up 42%), or the reauthorization of PDUFA, then perhaps it was the decade high for innovative drugs approvals. We would need to go back to the 1990s to find a year with as many FDA approvals for novel drugs as we had in 2012. Adding to the positive trend in numbers, up 29% from the robust 31 approvals in 2011, a number of last year's approvals came earlier than expected. Vertex's Kalydeco and Ariad's Iclusig, for example, both came three months ahead of their respective PDUFA dates. Over 50% of the approvals had FDA Priority review or Orphan designations.

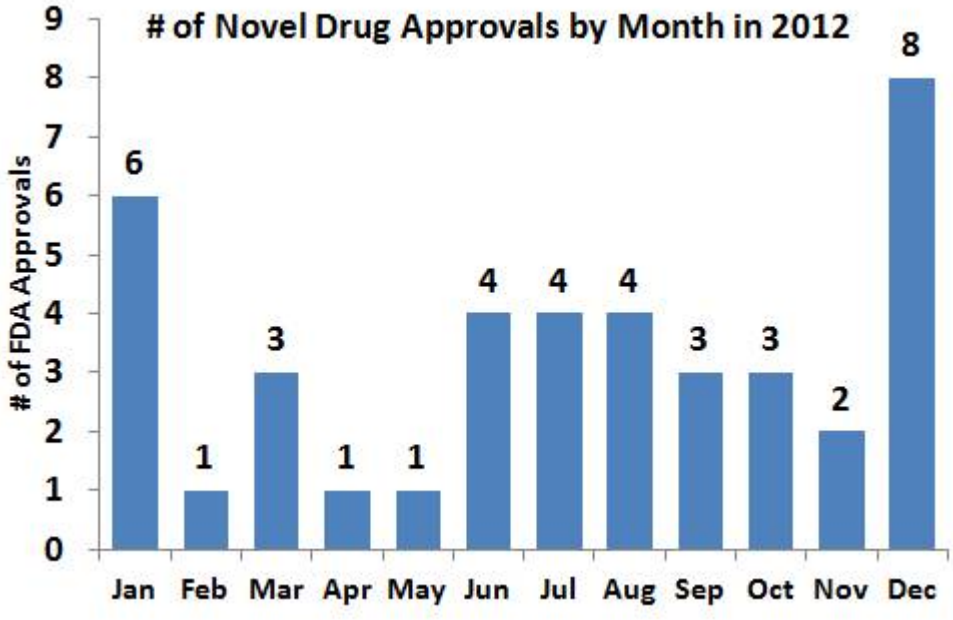


The top three therapeutic areas (cancer, cardiovascular, and metabolic) accounted for 60% of novel drug approvals. The majority of approvals (70%) were small molecule New Drug Applications (NDAs) approved through FDA's Center for Drug Evaluation and Research (CDER).

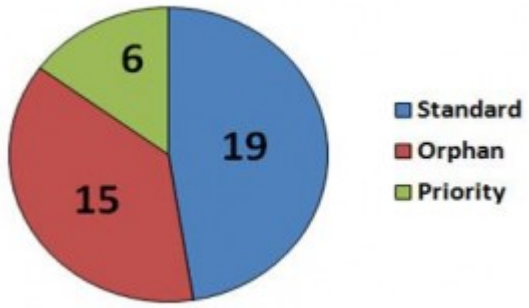


On the biologics front, it was not antibodies that stole the show last year, but rather therapeutic enzymes and synthetic peptides. Among the enzymes approved was Jetrea, a recombinant protease from Belgium-based Thrombogenics (EBR:THR) that can be used to treat vision distortions. Protalix (PLX) and Pfizer (PFE) brought forward the first enzyme derived from plant cells. This recombinant enzyme, now branded as Elelyso, can now be used to treat adult Type 1 Gaucher Disease. Another recombinant enzyme, a carboxypeptidase named Voraxaze from BTG International (LON:BTG), was approved for lowering methotrexate levels in patients undergoing chemotherapy.

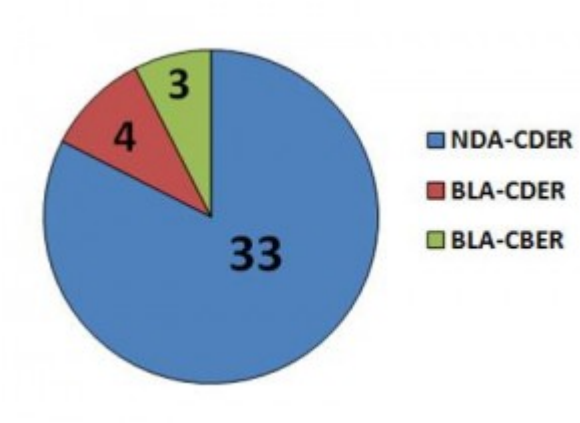
The first FDA approval of a synthetic peptide for respiratory distress syndrome (RDS) in premature infants was granted to Discovery Labs forSurfaxin. In the first half of 2012, the media and Wall Street spotlight focused on peptides heading into competitive markets: Amylin's (nowBMY) Bydureon, a long acting GLP-1 agonist for Type 2 Diabetes and Affymax's (AFFY) Omontys, a long acting erythropoiesis-stimulating agent (ESA) for the treatment of anemia due to chronic kidney disease (CKD) in patients on dialysis. Omontys was AFFY's first drug approval. Ironwood also had a first approval with a peptide compound, Linzess, for irritable bowel syndrome with constipation (IBS-C) and chronic constipation. Late in the year, Gattex, a degradation resistant GLP-2 peptide analog from NPS was approved.



Only two new monoclonal antibodies were approved in 2012 – Genentech's (Roche's) Perjeta, a new anti-Her-2 antibody that blocks dimerization, and Human Genome Sciences' (GSK's) Abthrax Mab for Anthrax.



Orphan and rare diseases also took the stage in 2012, with 15 molecules approved under the FDA's Orphan designation. Late in December, small biotech Aegerion (AEGR) won its first FDA approval forJuxtapid to treat HoFH (homozygous familial hypercholesterolemia, a rare genetic disorder that causes unmanageable cholesterol levels. It was Vertex (VRTX) that kicked off the year for the rare disease space with Kalydeco, used for a specific mutation in Cystic Fibrosis patients. The rare occurrence of multi-drug resistant tuberculosis can now be treated with Jannsen's (JNJ's) approved Sirturo. Novartis (NVS) also added to the orphan portfolio with a somatostatin analog (Signifor) for Cushing's Disease patients unable to undergo pituitary surgery or whose surgeries were not successful.



For novel Biologic License Applications, (BLA filings), more came through CDER (Center of Drug Evaluation and Research) than through CBER (Center of Biologics Evaluation and Research). Although only 17% of approvals were via the BLA route, four of these came through CDER as most small peptides qualify for NDA filing.

Looking to hear more about the launch of these new products? CEOs from public companies with 2012 FDA approvals, such as Gilead (GILD), Onyx (ONXX), Affymax (AFFY), Exelexis (EXEL), Arena (ARNA), and Protalix (PLX), will be presenting at the upcoming BIO CEO ConferenceFebruary 11-12th in New York. As the world's largest independent conference focused on publicly traded biotechs, it is the essential event for scouting 2013's Phase III catalysts and NDA/BLA filers.
Methodology: We analyze each approval from the FDA and count only drugs that are approved for the first time (first indication). Unlike other counting methods for new approvals, we do not include imaging agents (such as last year's Amyvid, Choline 11, and Prepopik), and avoid double counting (for example, Zaltrap for colon cancer is excluded, as the same molecule (aflibercept) was approved for wet macular degeneration in 2011). CBER approved a few cord blood products in 2012, where only the first such product was counted as they are nearly identical in composition.
CBER approvals can be found here:
CDER approvals can be found here:
Below is a listing of all 40 novel drug approvals:

1. VORAXAZE – BTG. Lowers the blood level of the chemotherpy drug methotrexate, MTX (high levels of MTX are toxic and can lead to kidney failure). Carboxypeptidase recombinant enzyme, expressed in E Coli. Biologics – enzyme/BLA-CDER. Approved Jan 2012.
2. PICATO – LEO Pharma A/S. Treats actinic keratosis, a precancerous skin condition, faster than previous treatments (works in 2-3 days). Small Molecule/NDA-CDER. Approved Jan 2012.
3. INLYTA – Pfizer. VEGFR1,2,3, PDGFR, cKIT inhibitor for advanced kidney cancer, RCC. Small Molecule/NDA-CDER. Approved Jan 2012.
4. BYDUREON – Amylin Pharmaceuticals. A weekly injectable GLP-1 mimetic for T2 diabetes. Long-acting form of BYETTA®. Biologics – peptide/NDA-CDER. Approved Jan 2012.
5. ERIVEDGE – Curis (Genentech). Smoothened receptor (SMO) antagonist targeting hedgehog signaling for the treatment approved for metastatic basal cell carcinoma. Approved based on Phase II data. Small Molecule/NDA-CDER. Approved Jan 2012.
6. KALYDECO – Vertex. Potentiator of CFTR that treats a rare form of cystic fibrosis in people with the G551D mutation in CFTR. Small Molecule/NDA-CDER. Approved Jan 2012.
7. ZIOPTAN – Merck (MSD). Treats elevated eye pressure in people at risk for glaucoma. The first preservative-free prostaglandin analog ophthalmic solution. Small Molecule/NDA-CDER. Approved Feb 2012.

8. SURFAXIN – Discovery Laboratories. The first FDA-approved synthetic peptide for respiratory distress syndrome (RDS) in premature infants. (The surfactant product contains 3 lipids in addition to the 21 amino acid peptide.) Biologics – peptide/NDA-CDER. Approved Mar 2012.
9. GINTUIT – Organogenesis, Inc.. Cell-based scaffold for mucogingival conditions in adults. Biologics – cell/BLA-CBER. Approved Mar 2012.
10. OMONTYS – Affymax. Pegylated analog of erythropoietin, first new treatment for anemic kidney patients (CKD patients on dialysis) in over a decade (since Aranesp 2001). Administered 1x/mo versus 3x/mo standard of care. Biologics – peptide/NDA-CDER. Approved Mar 2012.
11. STENDRA – Vivus. The first new Erectile dysfunction drug in a decade, a faster-acting PDE5 inhibitor. Small Molecule/NDA-CDER. Approved Apr 2012.
12. ELELYSO – Protalix (Pfizer). The first plant cell-based enzyme replacement therapy for the treatment on Adult type 1 Gaucher Disease. Biologics – enzyme/BLA-CBER. Approved May 2012.
13. PERJETA – Roche (Genentech). Anti-Her-2 antibody that blocks dimerization. For first line treatment in breast cancer. Biologics – Mab/BLA-CDER. Approved Jun 2012.
14. MENHIBRIX – GSK. Combination vaccine to prevent meningococcal disease and Haemophilus influenzae type b (Hib) in children Biologics – Vaccine/BLA-CBER. Approved Jun 2012.
15. BELVIQ – Arena (Eisai). 5HT-2c agonist for obeisty. First weight loss drug approved by the FDA in over a decade. Small Molecule/NDA-CDER. Approved Jun 2012.
16. MYRBETRIQ – Astellas. β3 adrenergic receptor agonist for overactive bladder by improving bladder storage. Small Molecule/NDA-CDER. Approved Jun 2012.
17. QSYMIA – Vivus. Weight loss pill that combines phentermine (for norepinephrine release) and topiramate (an antiepilelptic drug). Small Molecule/NDA-CDER. Approved Jul 2012.
18. KYPROLIS – Onyx. Proteasome inhibitor for patiets with multiple myeloma who have failed other treatments. Approved under accelerated review. Small Molecule/NDA-CDER. Approved Jul 2012.
19. TUDORZA PRESSAIR – Forest Labs. Inhaled muscarinic antagonist for bronchospasm associated with COPD, including chronic bronchitis and emphysema Small Molecule/NDA-CDER. Approved Jul 2012.
20. VASCEPA – Amarin. Ultra-concentrated form of omega-3 fatty acid (fish oil) for patients with high triglycerides. Small Molecule/NDA-CDER. Approved Jul 2012.
21. MARQIBO – Talon. Nanoparticle-encapsulated vincristine sulfate (liposome injection) for Acute Lymphoblastic Leukemia (ALL) Small Molecule/NDA-CDER. Approved Aug 2012.
22. STRIBILD – Gilead. Four drugs in one pill for once per day HIV treatment. Also known as “Quad”. Small Molecule/NDA-CDER. Approved Aug 2012.
23. LINZESS – Ironwood (Forest). Peptide agonist of guanylate cyclase 2C for irritable bowel syndrome with constipation (IBS-C) and chronic constipation (CC) Biologics – peptide/NDA-CDER. Approved Aug 2012.
24. XTANDI – Medivation. Androgen receptor antagonist for metastatic castration-resistant prostate cancer who have previously received docetaxel. Small Molecule/NDA-CDER. Approved Aug 2012.
25. BOSULIF – Pfizer. Bcr-abl kinase inhibitor for chronic myelogenous leukemia (CML) Small Molecule/NDA-CDER. Approved Sep 2012.
26. STIVARGA – Bayer. VEGFR,TIE2 tyrosine kinase inhibitor for metastatic colorectal cancer Small Molecule/NDA-CDER. Approved Sep 2012.
27. AUBAGIO – Sanofi. Dihydroorotate dehydrogenase inhibitor for relapsing forms of multiple sclerosis (MS) Small Molecule/NDA-CDER. Approved Sep 2012.
28. JETREA – Thrombogenics. Recombinant protease with activity against fibronectin and laminin to treat symptomatic vitreomacular adhesion, distortion of vision Biologics – enzyme/BLA-CDER. Approved Oct 2012.
29. FYCOMPA – Eisai. Glutamate receptor antagonist for the treatment of refractory partial-onset seizures (epilepsy) Small Molecule/NDA-CDER. Approved Oct 2012.

30. SYNRIBO – Teva. Ribosome inhibitor for chronic myeloenous leukemia (CML) patients who have failed TKI therapy Small Molecule/NDA-CDER. Approved Oct 2012.
31. XELJANZ – Pfizer. JAK inhibitor for 2nd line treatment for rheumatoid arthritis. Oral treatment for RA. Small Molecule/NDA-CDER. Approved Nov 2012.
32. COMETRIQ – Exelixis. c-MET, VEGFR2 inhibitor for medullary thyroid cancer that has metasticized Small Molecule/NDA-CDER. Approved Nov 2012.
33. ICLUSIG – Ariad. Tyrosine kinase inhibitor for chronic myelogenous leukemia (CML) resistant or intolerant to other TKIs. Accelerated review. Small Molecule/NDA-CDER. Approved Dec 2012.
34. SIGNIFOR – Novartis. Somatostatin analog for Cushing's Disease patients unable to undergo pituitary surgery or whose surgeries were not successful Small Molecule/NDA-CDER. Approved Dec 2012.
35. ABTHRAX – HGSI (GSK, BARDA). Monoclonal antibody for the treatment of inhaled anthrax. Targets the Bacillus anthracis protective antigen (PA). Biologics – Mab/BLA-CDER. Approved Dec 2012.
36. GATTEX – NPS Pharamceuticals. GLP-2 analog for short-bowel syndrome, helping their bodies better absorb nutrients Biologics – peptide/NDA-CDER. Approved Dec 2012.
37. JUXTAPID – Aegerion. MTP (microsomal triglyceride transfer protein) inhibitor for HoFH (homozygous familial hypercholesterolemia, a rare genetic disorder that causes unmanageable cholesterol levels Small Molecule/NDA-CDER. Approved Dec 2012.
38. ELIQUIS – BMS, Pfizer. Factor Xa inhibitor used as an anticoagulant for patients with the heart rhythm disorder atrial fibrillation. Small Molecule/NDA-CDER. Approved Dec 2012.
39. SIRTURO – Janssen. Mycobacterial ATP synthase inhibitor for pulmonary multi-drug resistant tuberculosis (In 2011, 98 patients in the US had MDR-TB) Small Molecule/NDA-CDER. Approved Dec 2012.
40. FULYZAQ – Salix Pharmaceuticals. Chloride channel inhibitor for the symptomatic relief of non-infectious diarrhea in adult patients with HIV/AIDS on anti-retroviral therapy Small Molecule/NDA-CDER. Approved Dec 2012.