

Current Patents Gazette

Patenting in Context

News & Highlights from week 0823

Novartis has been in the news again this week with the announcement that it is to acquire US biotech company **Protez Pharmaceuticals**, which will operate as a stand-alone subsidiary. As part of the acquisition, Novartis has gained the European and North American rights to **PZ-601** (also known as **SMP-601**), a novel broad-spectrum carbapenem antibiotic in phase II development against potentially fatal drug-resistant infections - including MRSA and ESBL (extended-spectrum beta-lactamase enterobacteriaceae) strains. Protez has been developing PZ-601 which is currently in phase II trials, under license from **Sumitomo Pharmaceuticals (Dainippon Sumitomo Pharma Co)**, and the success of the drug candidate will ultimately determine the amount paid by Novartis for Protez. PZ-601 is protected by several Sumitomo patents, including **WO0238564**. Although not specifically claimed in this PCT application, the product is covered by the Markush formula. However, the granted European and US equivalents do specifically claim PZ-601 and related compounds. This should mean that the product itself will be protected from generic competition until at least November 2021, when this family of patents expire. Sumitomo also has other patents protecting PZ-601, including PCT applications filed in June 2007 (claiming a stabilized formulation) and September 2005 (claiming the

combination of PZ-601 and other carbapenems, in particular **meropenem**). Antibiotic resistance is seen by many as one of the world's most pressing public health problems with around two million people in the United States developing hospital-acquired infections each year with around 90,000 deaths as a result. In Europe, an estimated three million hospital-acquired infections occur each year, resulting in some 50,000 deaths. Consequently Novartis sees this as a very important acquisition, with IP protection likely until 2026 for the basic compound, assuming SPCs and extensions are granted, and at least 2027 for likely marketed formulations. Novartis plans to start additional clinical trials for PZ-601, with the aim of first regulatory submissions in 2012.

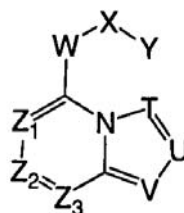
The only SPC announcement in this week's UK Patents Journal (No. 6211) relates to **Merck & Co Inc's** application based on **EP0748320** covering **fosaprepitant**, as reported by us last week. However, new applications have been filed by **Wyeth** and **GlaxSmithKline** (GSK) which have not yet been reported in the Patents Journal.

Wyeth has filed an SPC application on **EP0763039** to protect **temsirolimus**, which it markets as **Torisel**, and which gained EU approval in November 2007, having been launched in the US in August 2007. If granted, the SPC will expire after the maximum five-

year duration on April 14, 2022. Torisel is an analog of the mTOR inhibitor **sirolimus (rapamycin)**, which is marketed as **Rapamune** by Wyeth. The product is indicated for the iv treatment of advanced renal cell carcinoma (RCC) and is expected to achieve sales of almost \$400 million by 2011. However, analysts at Natixis Bleichroeder noted in October 2007 that Torisel was the third RCC drug approved in as many years, and as such they were "not optimistic about the competitive landscape facing the product" given there were only around 13,000 new RCC cases in the US each year. It was thought that a potential positive was the fact that the drug was iv administered, which provided financial benefits to oncologists compared with oral agents.

GSK has filed a new SPC application covering **fluticasone furcate** (sic) on **EP1305329**, which if granted will expire fifteen years after the EU approval around January 11, 2023. The drug covered is actually GSK's **fluticasone**

furoate marketed as **Veramyst**, **Allermist** and **Avamys**, a nasal steroid spray for the intranasal treatment of the symptoms of seasonal and perennial allergic rhinitis in patients aged two years and older. It had previously been launched in the US in June 2007. Sales are expected to grow to around \$654 million by 2011, whilst sales of GSK's **fluticasone (Flixonase or Flonase)** are expected to drop to around \$144 million in the same time frame. Generic versions of Flixonase and Flonase are already available in the EU and US respectively, following the expiry of SPCs on the various European patents and USC 156 and pediatric extensions on the US patent (**US4335121**) between 2004-2006. Consequently, GSK will be looking to migrate fluticasone customers to the newer nasal spray and so offset generic competition. Fluticasone furoate is also in development for the treatment of asthma and was in phase II trials for this indication December 2002; phase II development was ongoing as of February 2008.



Neurogen files first patent on indolizine amide derivatives as P2X7 purinoceptor antagonists.

UK Initial Applications

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A0 applications filed April 28th – May 4th 2008 – expected to see publication in November 2009

• **Chroma Therapeutics** has filed two new UK initial applications claiming **IKK and IKK- β serine-threonine protein kinase inhibitors** (GB0807642 and GB0807908). These were filed around the same time as another pair of initial applications noted last week from Chroma claiming PLK1 inhibitors. The company has recently published claims to arbamoylamino L-leucinates as inhibitors of IKK β kinase activity useful for the treatment and prevention of cancer, melanoma, rheumatoid arthritis, psoriasis, Crohn's disease in **WO2008053182** and **WO2008053185**. The two published PCTs also name inventors based at **Sygnature Chemical Services**.

• **Lectus Therapeutics** has filed a new application claiming further **calcium ion channel modulators** (GB0807772). This follows on from a cluster of five similar applications previously noted in September 2007, although no claims from this project have yet seen publication. Established in 2003, Lectus utilizes its proprietary LEPTICS (Leveraged Enabling Proteomics Technology for Ion Channel Screening), proteomics research engine in

the discovery and development of next-generation ion-channel modulators for pain, urinary incontinence and angina. In April 2006, it acquired the assets of **NeuroServe**, an electrophysiology company providing ion channel test facilities for pharmaceutical and biotech clients, including intellectual property, equipment, expertise and the lease of their premises in Babraham. In September 2007, the company received £3 million funding from the **Wellcome Trust's** Seeding Drug Discovery Initiative for the identification of new classes of selective potassium channel modulator therapeutics for multiple sclerosis. More recently, Lectus has published applications relating to heterocyclic derivatives as Kv1 voltage gated potassium channel inhibitors for inflammation, immune disorders, multiple sclerosis, and atherosclerosis in **WO2008038051** and **WO2008038051**.

• **Plarmed Pharma** lodged a new application at the UK intellectual property office entitled simply **pharmaceutical compounds** (GB0807502) on April 24, 2008. Plarmed specializes in the discovery

and development of highly selective inhibitors of phosphatidylinositol 3-kinase (PI 3-kinase) and has been carrying out research into this area since its establishment in 2003, and the current application may continue in this line alongside previously published **WO2007127175**, **WO2007129161** and **WO2007132171**, disclosing pyrimidines, thienopyrimidines and fused pyrimidines as PI3K inhibitors for the treatment of tumors. Just prior to the filing of this application, on April 15, 2008, **Roche** announced its intention to acquire Plarmed, which had previously been collaborating with its subsidiary **Genentech**. This acquisition was completed on May 28 2008.

• **Thrombosis Research Institute** has filed an application to protect a **vaccine composition and a method** (GB0807579). Xinjie Lu, of the Thrombosis Research Institute, is reported to be working on a DNA-based vaccine against atherosclerosis (**atherovac**). His webpage cites a previous UK initial application claiming an anti-atheroma vaccine (GB0606256) lodged in March 2006, which was later dropped

at the end of its Convention year on March 28, 2007. The PDJ lists three further applications from Thrombosis Research Institute covering anti-atheroma and BCG-based anti-atheroma vaccines filed in the year April 2007 to 2008 (GB0706540, GB0709373 and GB0806461).

• **Vantia Therapeutics** of Southampton has filed a new UK initial application covering **aminopyridine derivatives** (GB0807828). Vantia was incorporated in October 2007, based in **Southampton University's** Science Park, acquiring assets and personnel from **Ferring Research** in March 2008. The company's lead compounds appear to be **VT-483**, a vasopressin agonist, currently in phase II trials for nocturia and **VT-913**, a vasopressin antagonist scheduled to enter human trials in 2008 for potential in dysmenorrhoea. Vantia's pipeline also includes a range of kallikrein and fibroblast activation protein inhibitors in lead discovery.