INJECTION OF SUCCESS

Drug development is big business the world over, and a European company is making huge inroads in specialist cancer and lupus research

ImmuPharma is one of the leading specialist drug development companies in Europe and has been listed in London since 2006, with the company's shares also trading in Berlin, Germany. The company has five drug candidates in development, two platform technologies and approximately 70 patents.

ImmuPharma was founded and is led by a commercially focused board and management team with extensive experience. Its corporate strategy and business model differentiates it from many of its peers. Founded in 1999 in Basel, Switzerland with R&D operations in Switzerland and France, ImmuPharma is focused on developing pioneering drugs in specialist therapeutic areas with conditions characterised by the following:

- A "blockbuster" potential in niche markets
- High unmet medical need
- The ability to command high pricing
- Low marketing costs
- Relatively low development costs

The company's low-risk strategy is to capitalise on pioneering research taking place primarily at Europe's largest fundamental research institution, the Centre National de la Recherche Scientifique (National Centre for Scientific Research or CNRS). The CNRS was founded in 1939 and is a government-funded research organisation, under the administrative authority of France's Ministry of Research and has over 30,000 employees and an annual budget of over €3bn. The CNRS has received many prestigious awards and has previously produced 17 Nobel laureates and 11 Fields Medal award winners.

ImmuPharma has a significant collaborative research and development agreement with the CNRS, which allows the company access to many scientists and doctors, keeping its costs low by avoiding the constant funding necessary for early stage research.

IN THE PIPELINE

ImmuPharma's most advanced drug candidate is for the treatment for lupus which is a chronic, sometimes fatal disease which attacks multiple parts of the body such as the skin, kidneys, blood cells, heart and lungs. According to some analysts and professional organisations, there are an estimated 1.4m people diagnosed with the disease just in the seven major drug markets (US, Japan, Germany,

France, UK, Italy and Spain) alone. The US Lupus Foundation believes that the number is higher, estimating 1.5m people just in the USA. The rest of the world represents an additional market potential. There is no recognised cure for the disease.

The drug is called Lupuzor, and has a novel mechanism of action aimed at modulating the body's immune system so it corrects the abnormality causing lupus without causing adverse side effects. It has the potential to halt the progression of the disease.

Lupuzor was licensed to American specialty pharmaceutical company Cephalon in 2008/2009 in one of the largest pharma deals in Europe. Cephalon paid ImmuPharma $15m before the results of the ImmuPharma's phase llb study for the exclusive option to enter into the worldwide licence. Following positive results of ImmuPharma's phase llb study in early 2009, Cephalon exercised its option by paying a further $30m for an exclusive worldwide licence. This was part of a corporate deal worth over $500m in cash with milestone payments, on top of high royalties on product sales. In addition, Cephalon assumed all responsibilities and costs for the development and commercialisation of the drug. In May 2011, Cephalon agreed to a takeover bid by Teva Pharmaceuticals. The acquisition was finalised back in October 2011. Given the fact that Teva has a competing drug candidate for lupus (laquinimod) and the existence of key provisions of the agreement between ImmuPharma and Cephalon, Immupharma requested and was granted the return of the rights for Lupuzor.

ImmuPharma regained the drug at an exciting stage in its development. The FDA has granted Lupuzor approval to start a third phase with a SPA and Fast Track designation, shortening the approval time by about a year. The company is now in detailed discussions with potential partners to re-licence Lupuzor while also exploring the option to retain the rights until commercialisation.

A POTENTIAL TREATMENT FOR CANCER

Data on ImmuPharma's anti-cancer program, (IPP-204106), have shown to confirm the ability of the compounds to effectively control and stop the growth of a large panel of human cancer cell lines both 'in vitro' and 'in vivo'. Collectively the studies comprised breast cancer, prostate cancer, melanoma, glioblastoma, leukemia, colon cancer and pancreatic cancer cell lines.

In May 2010, ImmuPharma received an investigational new drug (IND) approval from French authorities (Agence Française de Sécurité Sanitaire des Produits de Santé), to start testing IPP-204106 in a phase I/IIa study in cancer patients in three centres in France. The patients dosed had been suffering from breast cancer, lung cancer or bladder cancer and all with metastasis. No serious drug-related adverse effects have so far been reported and a number of patients have already been rated as having stabilised the disease. In May 2011, the drug was chosen to feature on the front cover of *Cancer Research*, the prestigious medical journal of the American Association for Cancer Research. ImmuPharma have been awarded grants of over €1m from national French research agencies for its work on the drug.

DEVELOPING DRUGS

- It takes on average 12-15 years to develop a drug from an idea to a product that can sold and used on patients.
- Usually half of this time is spent testing and researching the drug in laboratories, the other is spent testing the drug on people (clinical testing) and having the subsequent data reviewed by the relevant regulatory authorities.
- Combined profits of the top 10 'Big Pharma' companies is estimated to be around $40bn.

ENCOURAGING DEVELOPMENTS

ImmuPharma has a third compound aimed at tackling strong pain (IPP-102199). The drug is being designed as a non-addictive replacement for morphine, with potential advantages such as longer duration and fewer side-effects. The compound is based on met-enkephalin, a small peptide that naturally occurs within the body. Regarding the treatment of infections, ImmuPharma's fourth compound (IPP-203101) is an antibiotic aimed at tackling MRSA and other hospital-acquired infections. Research is using the fact that bacterial organisms have an electrical charge on their cell membranes while human cells do not. IPP-203101 is a peptide-based antibiotic that carries an electrical charge to disrupt the membranes of the bacteria.

Finally, in the field of inflammatory and allergic disorders, ImmuPharma has discovered that a lead compound from its library (IPP-201007) can inhibit phospholipases A2s (PLA2s) enzymes which can cause allergic reactions as well as inflammatory disorders such as rheumatoid arthritis, septic shock and acute pancreatitis.

ImmuPharma has been recently rewarded for its work, and was the winner of the "Breakthrough of the Year 2009, European Mediscience Award", sponsored by Piper Jaffray, the "Best Technology Award" at the AIM Awards 2009, organised by the London Stock Exchange and was voted "Best Drug Development Company in Europe" by *The New Economy* "Pharmaceutical & Healthcare Awards" in 2010. The company has also attracted interest from some prestigious institutional investors, including: ING (Belgium), M&G, Gartmore, Jupiter, Aviva, Legal & General, Close, Standard Life and Pictet. tne