Event – Raptor hoping to spread its wings on DR Cysteamine data

Raptor Pharmaceutical, striker of two reverse mergers within three years, could be about to take another huge stride forward. Pivotal phase III data for DR Cysteamine to treat nephropathic cystinosis, an exceptionally rare genetic disorder, are due within the next few months and positive results could add to already impressive recent share price gains.

Expectations have certainly been building. Analysts at two banks - Canaccord Genuity and Lazard Capital Markets - started tracking the company in the last three weeks with bullish initial reports, helping Raptor’s stock to gain 65% to reach a record high of $5.59 since the Californian company reversed into TorreyPines Therapeutics in 2009. A delayed release version of Mylan’s Cystagon, Raptor’s product needs to prove non-inferiority if its dosing and safety advantages are to be realised, which analysts claim could enable the drug to fetch a particularly handsome annual price of $100,000.

Reversing to move forward

Established in 2005 by former executives and scientists at BioMarin Pharmaceutical, Raptor reversed into nutritional drinks manufacturer, Highland Clan Creations, in 2006 gaining access to the OTC Bulletin Board for small, illiquid stocks.

Three years later, Raptor gained access to the Nasdaq stock market by reversing into distressed pharma company, TorreyPines. Important as these moves have been in terms of gaining public exposure, neither reverse-merger partner came with much cash and the company has essentially been living hand-to-mouth since.

Raptor raised $15m through a private placement in August 2010 and as of February 28 held $16.5m in cash, enough it says to last until the first quarter of 2012.

In light of this, perhaps Raptor’s most significant transaction to date was its purchase in 2007 of Encode Therapeutics, bringing an exclusive worldwide license to delayed release (DR) Cysteamine.

Orphan play

Nephropathic cystinosis, or cystinosis, is a rare genetic lysosomal storage disorder, which Raptor estimates at just 500 diagnosed cases in the US and 2,000 cases worldwide.

Cystinosis is caused by the defective transport of the amino acid cystine across the intracellular membrane of the lysosome, an organelle which plays an important role in the degradation of cellular waste products.
Disrupting this process leads to the accumulation and crystallisation of lysosomal cystine, which destroys tissues and damages organs, especially the kidneys. If left untreated, patients with cystinosis die of kidney failure by the age of ten.

Aside from a kidney transplant, the only available treatment is Cystagon, an immediate-release version of cysteamine, an oral capsule which needs to be taken every six hours, which means night-time dosing and therefore patient compliance is often poor. Taken properly, Cystagon can extend a patient’s life well into their twenties without the need for a kidney transplant.

However Cystagon can also cause significant gastrointestinal (GI) side effects, including nausea, vomiting and acid reflux. Which is where Raptor’s DR Cysteamine comes in, attempting to address both key issues of dosing and GI side effects.

With a half-life more than three times longer than Cystagon, DR Cysteamine is being developed as a twice daily oral dose. Meanwhile the revised formulation could result in more effective delivery of the drug, passing through the stomach and quickly into the small intestine where it can be more easily absorbed into the bloodstream, resulting in less GI effects. The twice-daily dosing means the effective daily dose of cysteamine could be 30% lower with the Raptor product.

**Crucial data**

The pivotal trial started a year ago, enrolled 36 patients, and headline data could be released as early as this month.

The primary endpoint will compare white blood cell cystine levels of patients taking DR Cysteamine to Cystagon, with non-inferiority the target. Secondary measures include safety and tolerability of the two products.

Cystagon is currently priced at about $9,000 per year, but Canaccord analysts reckon the orphan indication, data to support significantly improved clinical outcomes, and the prevention or delay in the need for a kidney transplant, mean an annual cost of $150,000 could be justified. Roth Capital analysts have estimated an annual cost $70,000.

DR Cysteamine clearly needs to produce some exceptional data if these kinds of prices are to be acceptable to payers, particularly outside the US.

**Broader potential**

The drug is also being developed for non-alcoholic steatohepatitis, or NASH, a metabolic disorder of the liver, which has a much greater prevalence, but with no treatment options. NASH is associated with obesity and Raptor estimates it could affect as much as 5% to 11% of the US population. Roth Capital estimate a global patient population with NASH at 136 million.

Raptor has completed phase IIa studies in NASH, but has said it does not currently have the funding in place to start a phase IIb study. In April it announced “early stages of discussions to co-develop or partner the clinical development of DR Cysteamine in NASH”.

Additionally, a phase II study was started in October 2010, in collaboration with a French institution, CHU d’Angers, to test DR Cysteamine in treating Huntington’s Disease, a fatal, inherited degenerative neurological disease which affects 60,000 people in the US and Europe.

As it stands, Raptor says it will commercialise DR Cysteamine itself in the cystinosis setting, although positive data could spark significant partnering or buyout interest from bigger pharma players increasingly attracted to orphan drug players.

But first the drug needs to deliver on burgeoning expectations.