

## Unpartnered hep C assets to attract attention



ZymoGenetics' potential \$1.1bn deal with Bristol-Myers Squibb over a phase I interferon candidate and the recent surge in Anadys Pharmaceuticals' share price on the back of positive phase Ib data highlights the excitement that currently exists within the hepatitis C field, even for products at such an early stage of development.

With such a buzz in the sector, EP Vantage has reviewed pipeline data from EvaluatePharma which reveals that there are currently 170 products in active development to treat hepatitis C. Of these, 52 pre-clinical or clinical stage candidates, being developed by no fewer than 45 separate companies, have been identified as potential partnering opportunities (See table below).

The following analysis excludes products already partnered in the major pharmaceutical markets (USA and Europe) and those in development by big and mid-cap pharma companies that we assume would normally develop and commercialise the product themselves.

With very little cash available for small companies to pursue grander ambitions involving commercialisation, parties looking for a product to take to the market have plenty to choose from. Meanwhile, those looking for a partner can take heart from ZymoGenetics' deal, which despite the plethora of potential candidates, managed to negotiate very favourable terms ([Bristol-Myers, Zymo deal shows interest in hep C remains high, January 13, 2009](#)).

Anadys provided a perfect example of the optimism that exists for promising candidates, with the share price doubling on the back of very early stage data ([Anadys surges on early hepatitis C data, January 12, 2009](#)).

Other companies that have expressed the desire to partner include Flamel Technologies, with worldwide rights to its phase II interferon alpha candidate up for grabs, and Valeant Pharmaceuticals, which is looking for a US partner for its phase II nucleoside analogue taribavirin.

Vertex, which sold ex-US rights to its lead hepatitis C candidate telaprevir to Johnson & Johnson for \$165m upfront in 2006, has a next-generation protease inhibitor in phase I trials, VX-500. Whilst the company's strategy appears to be to go it alone in the US, selling rights elsewhere to its follow-on asset would seem to be a strong possibility.

The Bristol-Myers Squibb and ZymoGenetics deal delivered the second-largest upfront payment seen across all single-product phase I deals over the last three years, whilst Vertex's deal with J&J ranks as the biggest upfront payment for any phase II deal. The table below shows that there is plenty of scope for further high value partnerships.

**Unpartnered hepatitis C treatment drugs in clinical development**

Current Phase	Product	Pharmacological Class	Company	Technology	Originator
Phase II	SCV-07	Anti-infective	SciClone Pharmaceuticals	Small molecule chemistry	Verta
	HCV-I.E.T	Anti-viral	Transition Therapeutics	Recombinant product	Transition Therapeutics
	Debio-025 (UNIL-025)	Cyclophillin inhibitor	Debiopharm	Small molecule chemistry	Debiopharm
	GI-5005	Hepatitis C vaccine	GlobelImmune	Bioengineered vaccine	GlobelImmune
			Flamel	Recombinant	Flamel

	IFN-alpha-XL	Interferon alpha	Pharmaceutical Technologies	Recombinant product	Pharmaceutical Technologies
	Taribavirin	Nucleoside analogue	Valeant Pharmaceuticals	Small molecule chemistry	Valeant Pharmaceuticals
	IPH 1101	T cell regulator	Innate Pharma	Small molecule chemistry	INSERM
	VCH-759	Hepatitis C polymerase inhibitor	ViroChem Pharma	Small molecule chemistry	ViroChem Pharma
	VCH-916	Hepatitis C polymerase inhibitor	ViroChem Pharma	Small molecule chemistry	ViroChem Pharma
<b>Phase I</b>	ONO-4538 / MDX-1106	Anti-PD-1 MAb	Medarex	Monoclonal antibody	Ono Pharmaceutical
	Bavituximab	Anti-PS MAb	Peregrine Pharmaceuticals	Monoclonal antibody	University of Texas
	EHC18	Hepatitis C agent	Enzo Biochem	Recombinant product	Enzo Biochem
	ANA598	Hepatitis C polymerase inhibitor	Anadys Pharmaceuticals	Small molecule chemistry	Anadys Pharmaceuticals
	PHX1766	Hepatitis C protease inhibitor	Phenomix	Small molecule chemistry	Phenomix
	HCV Vaccine	Hepatitis C vaccine	Pevion Biotech	Bioengineered vaccine	Pevion Biotech
	CYT 107	IL-7	Cytheris	Recombinant product	Cytheris
	Belerofon	Interferon alpha	Nautilus Biotech	Other biotechnology product	Nautilus Biotech
	P1101	Interferon alpha	PharmaEssentia	Recombinant product	PharmaEssentia
	VX-500	Protease inhibitor	Vertex Pharmaceuticals	Small molecule chemistry	Vertex Pharmaceuticals
	ANA773	TLR7 agonist	Anadys Pharmaceuticals	Small molecule chemistry	Valeant Pharmaceuticals
	IMO-2125	TLR9 agonist	Idera Pharmaceuticals	Other biotechnology product	Idera Pharmaceuticals
	VCH-222	Hepatitis C polymerase inhibitor	ViroChem Pharma	Small molecule chemistry	ViroChem Pharma