HAE Treatment Options (Published Data except sales)

		Recombinant C1 Inhibitor	Plasma-derived C1 Inhibitor concentrates		Bradykinin receptor antagonist	Kallikrein inhibitor	Clinical Trial: Kallikrein inhibitor antibody
Names		RUCONEST® ^	Cinryze^^^	Berinert	Firazyr**	Kalbitor^^^^	DX 2930 (a.k.a. SHP643)
Owner		Pharming	Shire	CSL Behring	Shire	Shire	Shire
Sales†		$33m	$550m	$200m	$500m	$83m	Entering Phase III
Efficacy		Good & consistent	Good	Good	Good	Good	
	Dosing (C1INH)	50 U/kg*	~12 U/kg	20 U/kg	N/A	N/A	N/A
	Treatment type	Acute^^	Prophylaxis	Acute****	Acute	Acute	Prophylaxis
	Response < 4h	89%	~52%	70%	58-74%	73%	??
Safety concerns		Very low risk of allergic reaction	Warning: Risk of blood clots	Warning: Risk of blood clots	97% injection site reactions	Black box warning: 3.9% Anaphylaxis	Data is in mild patients only
	Plasma risk	NO	YES	YES	N/A	N/A	N/A
Purity (C1INH)		>99.9%	±80%	±95%			
Relapse / worsening		Uncommon	Uncommon	Uncommon	11-31%***	17%	??
Administration		IV (SC, IM coming)	Twice weekly IV	IV (SC coming)	SC	SC (Hospital only)	SC

† Sales figures are Pharming estimates based on relevant selling company's releases and financial reports as well as IMS data and other proprietary databases

*Optimal efficacy of C1INH therapy is achieved at doses ≥50 U/kg ("Target levels of functional C1-inhibitor in hereditary angioedema". Allergy. C. E. Hack, A. Relan, E. S. van Amersfoort & M. Cicardi)

**Icatibant Clinical Briefing Document, CDER, FDA, 2011./ Aberer, et al. Ann Allergy Asthma Immunol 2010; 105(5):P238

** *Cicardi et al. N Engl J Med 2010;363:532-41.; Aberer, et al. Ann Allergy Asthma Immunol 2010; 105(5):P238; Lumry, et al. Ann Allergy Asthma Immunol. 2011;107:529–537.

****Berinert not licensed for peripheral attacks in the US.

^Ruconest approved in US, EU and Israel, ^^Ruconest filed for laryngeal attacks (US), ^^^Cinryze not licensed for acute therapy in US. ^^^^Kalbitor not approved in EU.

?? Kalbitor moderate response rate is likely to be pathway-related, at least in part. Relapse rate is also likely to be pathway-related in part. Accordingly DX 2930 may also have these issues. In addition, the safety consequences of chronically inhibiting the contact pathway have not been studied, and this may also be a factor. Antibodies tend not to have large (>75%) response rates.

Note: New forms of products for different routes of administration may require clinical development and regulatory approval.

Pharming