

**Table 2b - Distinctive Features of Early Biotech Firms**

	<b>(A) SCIENCE</b>	<b>(B) FINANCE</b>	<b>(C) COMMERCE</b>	<b>What Happened?</b>
<b>Centocor (1979)</b>	<ul style="list-style-type: none"> <li>Pursued aggressive in-licensing of research from public science</li> <li>Initially located in a business incubator on the University of Pennsylvania campus</li> <li>Enjoyed a close relationship with research institute (Wistar)</li> </ul>	- / -	<ul style="list-style-type: none"> <li>Served as a bridge between academic labs and Big Pharma manufacturing/marketing</li> <li>Recruited a senior exec from Corning's medical products business to run the company</li> <li>Focused on diagnostic products</li> </ul>	"Academic scavengers" almost lose their company due to grand inspirations to become a fully integrated pharmaceutical company. Acquired by Johnson & Johnson in 1999
<b>Amgen (1980)</b>	<ul style="list-style-type: none"> <li>Assembled an all-star science advisory board (SAB)</li> </ul>	<ul style="list-style-type: none"> <li>Went public in a last-ditch effort to save the company, despite no products or patented breakthroughs</li> </ul>	<ul style="list-style-type: none"> <li>Served as a bridge between academic labs and Big Pharma manufacturing/marketing</li> <li>Recruited a senior exec from Corning's medical products business to run the company</li> <li>Focused on diagnostic products</li> </ul>	Savvy VCs set out to "do biotech right" by recruiting stellar SAB and putting talented pharma escapee in charge; a biopharma titan is born
<b>Chiron (1981)</b>	<ul style="list-style-type: none"> <li>Founder stayed at university initially</li> <li>Applied the skills of academic administration to business</li> <li>Insisted that scientists publish and make contributions to public science</li> <li>Transferred a founder's existing research grant from the university (UCSF) to the company</li> <li>Used research partnerships with pharma companies and universities as a mode of exploration</li> </ul>	- / -	<ul style="list-style-type: none"> <li>Focused on large potential market underserved by Big Pharma: vaccines</li> <li>Scientific founder ran the company</li> </ul>	Scientist-entrepreneurs move the invisible college model to a business setting. Acquired by Novartis in 2006
<b>Genzyme (1981)</b>	<ul style="list-style-type: none"> <li>Transferred a founder's existing research grant from the university (Tufts) to the company</li> <li>Talented research assistant played a key founding role</li> <li>Hired its science advisory board intact (Bio-Information Associates, a consulting firm of MIT and Harvard professors)</li> </ul>	<ul style="list-style-type: none"> <li>Used tracking stocks to compartmentalize risk</li> <li>Grew through numerous small acquisitions</li> </ul>	<ul style="list-style-type: none"> <li>Founder was a serial entrepreneur from the packaging industry</li> <li>Focused on niche markets and orphan drugs</li> <li>Recruited a senior exec from Baxter to run the company</li> </ul>	VC group goes shopping for a new venture; builds business around orphan drug opportunities. Acquired by Sanofi-Aventis in 2011
<b>Immunex (1981)</b>	<ul style="list-style-type: none"> <li>Insisted that scientists publish and make contributions to public science</li> <li>Founding scientists resigned from academic jobs to avoid conflict of interest</li> <li>Chose a campus-like setting near a major university (University of Washington) and research institute (Hutchinson Cancer Center)</li> </ul>	<ul style="list-style-type: none"> <li>Out-licensed early patents to Big Pharma, then later reacquired them</li> </ul>	<ul style="list-style-type: none"> <li>One of the founders was a proven executive and turn-around artist</li> </ul>	Despite stellar scientific record, business success comes late. Acquired by Amgen in 2002, resulting in the loss of local "Immunoid" culture.