

Early Stage and Discovery Deals: Strategy, Structure and Payment Terms 2nd Edition

Table of Contents

Table of Contents.....	2
Executive summary.....	6
1. Introduction.....	7
2. What are the benefits of early-stage partnering?.....	9
2.1. The role of partnering in corporate strategy.....	9
2.1.1. What are the benefits of out-licensing?.....	9
2.1.2. In-licensing: A way of giving an off-patent drug a new life.....	10
2.2. The revenue from in-licensed products is predicted to have an annual growth rate of 10%.....	11
2.3. Partnering for pipeline development.....	12
2.3.1 One company's tactics: GlaxoSmithKline's approach to in-licensing.....	13
3. The evolving role of partnering in the biotech and pharma industries.....	15
3.1. Licensing to partnering.....	15
3.2. The traditional licensing model.....	15
3.3. The transition from straight-forward transactional exchanges to complex partnering agreements.....	17
3.4. Who benefits from the risk and reward sharing?.....	19
3.5. Sharing knowledge is a big part of the deal structure.....	22
3.6. What does the partnering model teach us?.....	23
3.7. Complex partnering models.....	23
3.7.1. Process.....	24
3.7.2. How to structure a successful deal.....	25
3.7.3. Financing – What aspects should be considered?.....	27
3.8. A shift in early stage dealmaking.....	28
3.8.1. Biotechs competing with pharma for deals.....	29
4. Early-stage deal strategies and structures.....	31
4.1 Successful out-licensing.....	31
4.2. When do companies partner?.....	32
4.2.1. Who benefits from early stage licensing?.....	33
4.2.2. License late: A safer but more costly avenue for the licensee.....	33
4.3. Early and late-stage deals - a cost comparison.....	34
4.3.1. What do companies spend on partnering and how successful are the in-licensed projects?.....	34
4.4.1. Alliances between biotechnology companies are taking over.....	35
Case study 4.1 – MedImmune / Infinity Pharmaceuticals	37
Case study 4.2 – PTC Therapeutics / CV Therapeutics	37
Case study 4.3 – Predix Pharmaceuticals / Amgen Inc.....	38
Case study 4.4 – Medtronic / RVX Therapeutics.....	38
Case study 4.5 – Enzon Pharmaceuticals / Santaris Pharma	39
4.4.2. Upfront payment: An important part of the deal structure.....	39
See case study 4.1 – MedImmune / Infinity Pharmaceuticals	41
Case study 4.6 – GlaxoSmithKline / ChemoCentryx.....	41
Case study 4.7 – Infinity Pharmaceuticals / Novartis	41
4.4.3. Why is University out-licensing associated with very early-stage projects?.....	43
Case study 4.8 – National Institutes of Health (NIH) / Regeneron	45
Case study 4.9 – GlaxoSmithKline / Alimentary Pharmabiotic Centre	45
Case study 4.10 – Biota / NIAID	46
Case study 4.11 – Cystic Fibrosis Foundation / Vertex Pharmaceuticals.....	46
4.5. Licensing strategy case studies.....	47
Case study 4.12 – Crucell / Immunobiological Laboratories Co Ltd.....	47
Case study 4.13 – Galapagos / Cellzome.....	48
Case study 4.14 – Memory Pharmaceuticals	48
Case study 4.15 – Caprion Pharmaceuticals / Boehringer Ingelheim.....	49
Case study 4.16 – Cambridge Antibody Technology / AstraZeneca.....	49
Case study 4.17 – Biorigen / New Life Scientific.....	50
Case study 4.18 – GTC Biotherapeutics / LFB Biotechnologies.....	51
4.6. Deal types.....	51

5. Payment strategies.....	54
5.1. Deciding a strategy.....	54
5.2. Payment options.....	54
5.2.1. Upfront payments.....	55
5.2.1.1. Conditionality of upfront payments.....	55
5.3.2. Loans.....	56
5.3.3. Convertible loans.....	56
5.3.4. Equity.....	56
5.3.5. R&D funding.....	56
5.3.6. Annual fixed payments.....	57
5.3.7. Milestone payments.....	57
5.3.8. Innovative forms of payment - 'quids'.....	58
5.3.8.1. Products.....	58
5.3.8.2. Extended rights to pipeline/technology.....	58
5.3.8.3. Benefit from skills transfer.....	59
5.3.8.4. Public relations – An important factor for the early-stage company.....	59
5.3.8.5. Other quids.....	60
5.3.9. Royalties.....	60
5.3.9.1. Issues affecting royalty rates.....	60
5.3.9.2. Royalties on combination products.....	61
Case study 5.1 - Elan Corporation plc / Abbott Pharmaceutical PR Ltd.....	62
5.3.9.3. Guaranteed minimum/maximum annual payments.....	62
5.3.9.4. Royalty stacking.....	62
5.3.9.5. Royalties and supply/purchase contracts.....	63
5.3.10. Option payments.....	64
6. How to make the right deal.....	65
6.1. Constructing the deal.....	65
6.2. Finding the right partner.....	65
6.2.1. What attracts a partner?.....	66
6.2.2. Where to look for a partner.....	66
6.2.3. Sources of information.....	69
6.2.4. Building a network.....	69
6.2.4.1. Early-stage networking events.....	69
6.2.4.2. Networking for early biopharmaceutical executives.....	70
6.2.5. Becoming partner of choice.....	72
6.3. Deal timeframes.....	73
6.4. Deal valuation.....	74
6.4.1. Factors contributing to the deal valuation.....	74
6.4.1.1. Intellectual property.....	75
6.4.1.2. Development phase.....	76
6.4.1.3. Cost of clinical trials.....	76
6.4.1.4. Risks associated with commercializing too late.....	76
6.4.1.5. Benchmark values.....	76
6.4.1.6. Preclinical/clinical data.....	77
6.4.1.7. Risk of failure.....	77
6.4.1.8. Size and value of therapeutic market.....	77
6.4.1.9. Competition for licensing rights.....	77
6.4.1.10. Partner's expertise/reputation in given field.....	78
6.4.1.11. Impact on internal R&D programs.....	78
6.4.2. Due diligence as a valuation tool.....	78
6.5. Keeping a deal successful.....	81
6.5.1. Commitment to the deal.....	81
6.5.2. Know your partner.....	81
6.5.3. Thorough due diligence.....	82
6.5.4. Patent and IP management.....	82
6.5.5. Comprehensive deal agreement.....	82
6.5.6. Feasible and achievable milestones.....	83
6.5.7. Proactive management of issues.....	83
6.5.8. Regular communication.....	83
6.5.9. Tracking of payments and royalties.....	84

6.6. When to negotiate termination.....	84
6.7. What makes a deal 'newsworthy'?.....	85
7. Deal terms and trends – An analysis of early stage deals.....	86
7.1. Why are deal-terms put in the public domain?.....	86
7.2. Does survey data reflect the real deal?.....	87
7.3. Headline valuations.....	87
7.5. Components of the deal.....	91
Appendix 1 - Glossary of terms.....	94
Appendix 2 - Resources.....	97
Appendix 3 – Complex deal terms: an outline.....	98
Appendix 4 – Press releases.....	101
Case Study 4.1	101
Case study 4.2.....	104
Case study 4.3.....	106
Case study 4.4.....	109
Case study 4.5.....	111
Case study 4.6.....	114
Case study 4.7.....	116
Case study 4.8.....	118
Case study 4.9.....	121
Case study 4.10.....	122
Case study 4.11.....	124
Case study 4.12	126
Case study 4.13	127
Case study 4.15.....	129
Case study 4.16.....	130
Case study 4.17.....	131
Case study 4.18.....	133
Case study 5.1	136
Appendix 5 - References.....	140
Appendix 6 – Biographies.....	142
Acknowledgements.....	142
Pharmalicensing.....	142

List of Tables:

Table 1. GSK's - Centers of Excellence for Drug Discovery consists of 7 individual centres..	14
Table 2. R&D project mathematical valuation models need to be more complex in order to reflect reality.....	27
Table 3. Big pharma dealmaking trends show that they prefer to invest in similar development stages.....	34
Table 4. The top 5 deal values in Jan 2006 – Oct 2006 combined reached a total of more than \$US 1.6 billion.....	37
Table 5. Top 5 upfront payments between Jan-2006 and Oct-2006.....	41
Table 6. The top 5 valued University deals, Jan-2006 to Oct-2006.....	45
Table 7. A summary of different deal types.....	53
Table 8. Payment strategies – components of the deal.....	55
Table 9. Variants affecting royalty payments.....	62
Table 10. Attributes that attract partners.....	67
Table 11. Major early-stage partnering events.....	71
Table 12. A selection of networking clubs worldwide.....	72
Table 13. Early stage deals deal frames – from contact to signature.....	75
Table 14. Factors contributing to deal valuation.....	76
Table 15. Ongoing due diligence to keep a deal successful.....	83
Table 16. A preclinical project is worth significantly less than a phase I or phase II project....	92

List of Figures:

Figure 1. Amount raised from partnering 1980-2005.....	7
Figure 2. Between Jan 2006 - Oct 2006, 6 early stage deals were valued at over \$US 100 million.....	36
Figure 3. Deals disclosing upfront payments between Jan 2006-Oct 2006.....	40
Figure 4. The values of University deals are significantly lower than biotech deals between Jan 2006 and Oct 2006.....	44
Figure 5. Key information sources for partnering executives.....	68
Figure 6. Lead Molecule R&D projects have increased most in value Jan. 2003 to Oct. 2006.	88
Figure 7. Breakdown of discovery deals from 2003 to October 2006*.....	89
Figure 8. Breakdown of lead discovery deals from 2003 to October 2006*	90
Figure 9. Preclinical deals from 2003 to October 2006*.....	91
Figure 10. Average total upfront payments by stage of development at deal closing (\$ million)	92
Figure 11. Average royalty rates by stage of development at deal closing (%).....	93

Executive summary

Today early stage partnering is a core component of both biotech and pharmaceutical business strategy, allowing companies to access promising new and emerging compounds and technologies. To become a successful player within the life science industry it is crucial to understand the changing dynamics of the industry's early stage dealmaking trends.

Dealmaking in the pharmaceutical industry is constantly growing; big pharmaceutical companies are forecast to receive around 40-50% of their revenue from in-licensed products by 2010. The balance of dealmaking activity has also moved, from the later stages of development to the early stages, where deals have not only increased in number but value too. For example in 2006 ChemoCentryx signed a potential US\$1.5 billion drug discovery and development deal with GlaxoSmithKline.

Deal complexity is advancing in terms of both financial reward structures and exchange of non-monetary capabilities. Therefore, to obtain a more rounded understanding of valuation and to achieve the maximum benefits of a deal it is essential to consider non-monetary benefits as well as deal values.

Pharmalicensing's revised edition of "Early Stage and Discovery Deals: Strategy, Structure and Payment Terms" analyzes early stage dealmaking trends and discusses the basics of dealmaking structures, covering payment terms and deal valuations. Updated with new data including case studies from 2006 and contracts this report aims to assist and guide leading professionals involved in business development through the complex process of early stage dealmaking.

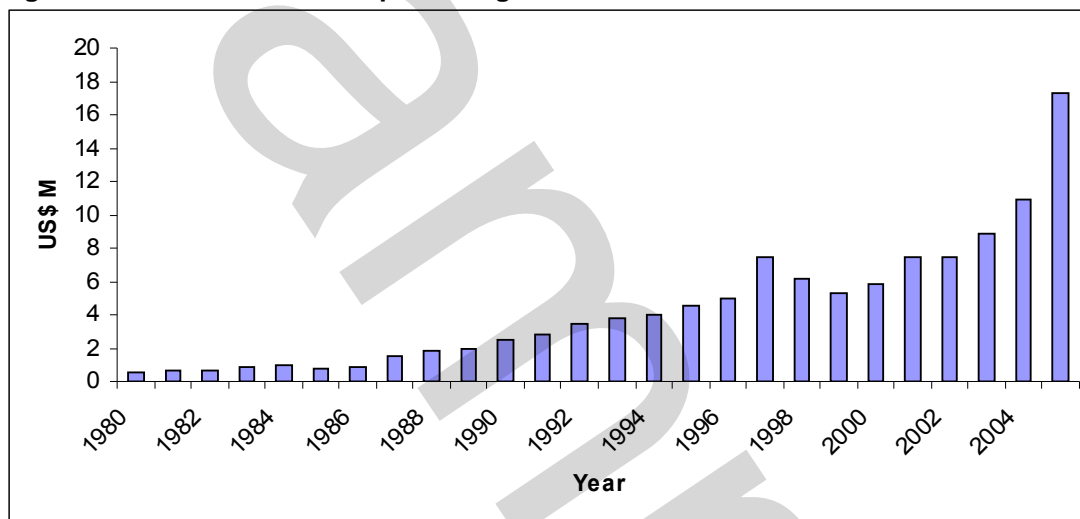
The report educates readers to the benefits of early stage partnering, offers tips for structuring and maintaining the right deal, examines the current partnering model and provides a complete breakdown of the various payment strategies. Providing an insight into why in-licensed projects have a lower failure rate compared to in-house projects, the report reveals the cost differences between in-licensed and in-house preclinical projects.

1. Introduction

Dealmaking in the pharmaceutical and biotechnological industries covers a wide variety of agreements between individuals, companies and institutions from simple late-stage product acquisitions through to complex discovery and target research and development deals. Dealmaking has existed since the beginnings of the industry, since the advent of proprietary medications, patents and entrepreneurs, and continues to be a strong growth area.

The number of life science partnerships has increased significantly over the last 25 years raising US\$17 million in 2005 compared to \$0.5 million in 1980, Source: Burill & Company, 2006. See Figure 1.

Figure 1. Amount raised from partnering 1980-2005.



Source: Burill & Company, 2006

The increase in dealmaking is due to a number of factors including:

- Increasing numbers of emerging biotechnology and drug discovery companies producing drug concepts but without the resources to:
 - take products through a full development program
 - market products internationally.
- Increasing interest in commercialization of innovations from universities and scientific institutions.
- Biotech investor demand for evidence of continued growth and endorsement of technologies by experienced pharmaceutical companies.
- Increasing costs of developing a drug from discovery to market launch.

- Low success probability (around 10%) that a drug entering clinical trials will be successful.
- Impending patent expiry of blockbuster drugs requiring new formulation and drug delivery formats.
- Consequent deficit in big pharma pipelines requiring in-licensing of products according to a wide variety of sources - large companies now depend on alliances for 25-60% of their pipelines
 - According to AstraZeneca, it costs US\$1.5 - 2 billion to bring a drug to market.
 - According to Tufts CSDD, Bayer, Astra-Zeneca, Allergan, Boehringer Ingelheim, and Merck were the five fastest drug development companies in the 2000-05 period; each was able to shorten its development and regulatory cycles by 17 months, compared to average performing drug developers. To assess the fastest drug developers, Tufts CSDD evaluated 104 approved drugs from 29 companies.

In addition to being a growing field, pharmaceutical dealmaking is a changing field. Many pundits have declared the death of the straightforward arms-length licensing deal, and the growth of partnering as the 'new licensing'. These new, more 'intimate' partnerships have advantages that allow the licensor to retain more rights and control over product development, whilst increasing the complexity of the deal.

This report addresses early-stage dealmaking in terms of trends, strategy, structure and financing. The report provides a comprehensive review of payment structures of recent early-stage dealmaking, providing numerous examples in the form of case studies and full deal contracts. Readers will fully understand how much partners are paying and under what conditions to access early-stage product developments.



pharmalicensing.com

Pharmalicensing Ltd
Marlborough House 1st Floor
Westminster Place
York Business Park
York
YO26 6RW
United Kingdom

Tel: +44 (0)1904 520460
Fax: +44 (0)1904 520461

info@pharmalicensing.com
www.pharmalicensing.com