Accelerated PCC Platform of AsymBio:

An Integrated CDMO Platform to Improve PCC Efficiency of Novel Drug Conjugates

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Introduction

Novel drug conjugates have emerged as one of the most dynamic and clinically successful modalities in modern pharmacy, combining the precision of an antibody with the potent cytotoxicity of a payload. They would require comprehensive technical expertise and teamwork as they progress through discovery, clinical development and commercial production. With the growing pressure from a range socioeconomic issues, such as revenue loss due to patent expirations, increasingly cost-constrained healthcare systems, aggressive timeline competitions and more demanding regulatory requirements, in our view the key to tackling these challenges is to dramatically increase the number and quality of innovative, cost-effective new medicines with competitive timelines and sustainable R&D costs. Here, we present an integrated CDMO platform (Accelerated PCC, AccPCC) whose ambition is to improve PCC（Preclinical Candidates) efficiency by selectively focusing on the lead optimization and preclinical stages during NDC discovery. The two stages consist of 24% of the total drug development cost and have a profound impact on CMC success rate. AccPCC platform will target the stages (lead optimization and preclinical) for increasing the number and quality of PCCs, while reducing the R&D cost by applying the one-stop integrated service strategy.

AccPCC Integrated R&D Platform Empowers PCCs by Targeting Lead Optimization and Preclinical Stages

	Target Discovery	Target to Hit	Hit to Lead	Lead Optimization	Preclinical	Phase I	Phase II	Phase III	Submission to Launch
Cost Percentage per modality		3%	6%	**17%**	**7%**	15%	21%	27%	5%
Cycle Time (years)		1	1.5	**2.0**	**1.0**	1.5	2.5	2.5	1.5

Modified and quoted from Paul Steven M,Mytelka Daniel S,Dunwiddie Christopher T et al. How to improve R&D productivity: the pharmaceutical industry's grand challenge.[J] .Nat Rev Drug Discov, 2010, 9: 203-14.

AccPCC platform targets only at lead optimization and preclinical stages to facilitate the PCCs success for two reasons. First, Asymchem is a pure CDMO company. All IP developed as part of Asymchem’s services belongs to clients. Asymchem never develops its own drug, nor does it provide services for early new drug discovery. Second, the lead optimization and preclinical stages accounts for 24% of total costs for each modality (Paul, S, 2010), and also the majority of costs at drug discovery stage. By focusing on the stages that matters most during CDMO’s critical path to PCCs, we can arrange resources and help with the improvement of number and quality of PCCs.

Case Study: An ADC Targeting Liver Cancer

Milestone I · R&D Optimization

- Linker and conjugation process development
- In vitro pharmacology & DMPK
- Deliverables: Preparation of 10 candidate ADCs; in vitro killing / payload release / inhibition of angiogenesis

Milestone II · Process Confirm and In vivo DMPK

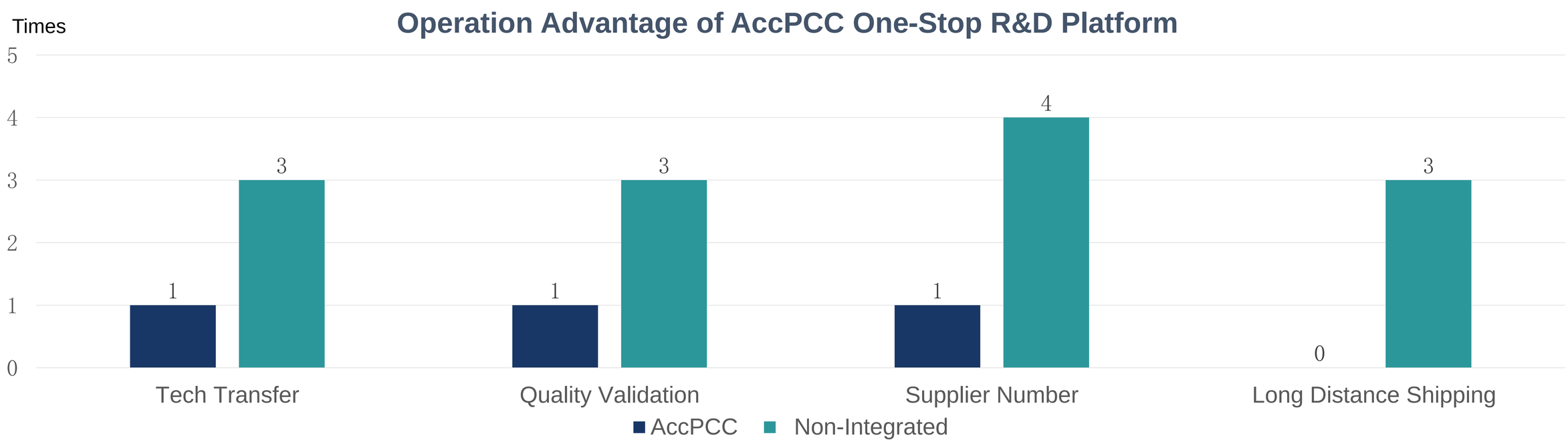
- Lead molecule preparation
- CDX & in vivo DMPK
- Stability Pre-Evalution
- Deliverables: Process Lock; top ADC candidate selection

Milestone III · Developability and Tox

- Formulation Developability,
- Forced degradation
- Pre-tox (MTD in rodents & NHPs)
- Deliverables: Preparation in scales & Developability Report

32 weeks in total — 20% faster than the industry average (40 weeks)
CMC 5w + Non-clinical 5w · CMC 13w + Non-clinical 14w (13w in parallel) · CMC + Non-clinical in parallel 8w

Operation Advantage of AccPCC One-Stop R&D Platform



Seamless Tech transfers

Minimum tech transfers;
Efficient communication and team work among different departments
Cost saving

Progress In Parallel

Overlapping timelines among antibody, payload/linker, conjugation and non-clinical milestones to guarantee more molecules enter PCC in shorter time

Quality Control

One supplier, one quality standard with global compliance and high one-time successful rate