De-risking Orphan Drugs: A Unique Initiative for Advancing Therapeutics for Rare Diseases

Cydan:
Next Generation of Capital Efficient Companies

- ***De-risking: $26M financing in 2013*** secured from NEA, Pfizer Ventures, Lundbeckfond, Bay City Capital (BCC), Alexandria Investments for de-risking to enable launch of up to 5 NewCo's in 4 years
- ***NewCo Spinouts: substantial additional VC capital*** reserved for launch
- Multiple therapeutic areas (except oncology) and diverse platforms
- ***Focused on orphan diseases*** with a characterized genetic etiology
- Experienced team of drug developers with ***broad, global experience***
- Outsource de-risking experiments; non-clinical and early clinical
- ***Rigorous deliverables to support go-no go decisions to spin out companies*** based on prospectively set milestones

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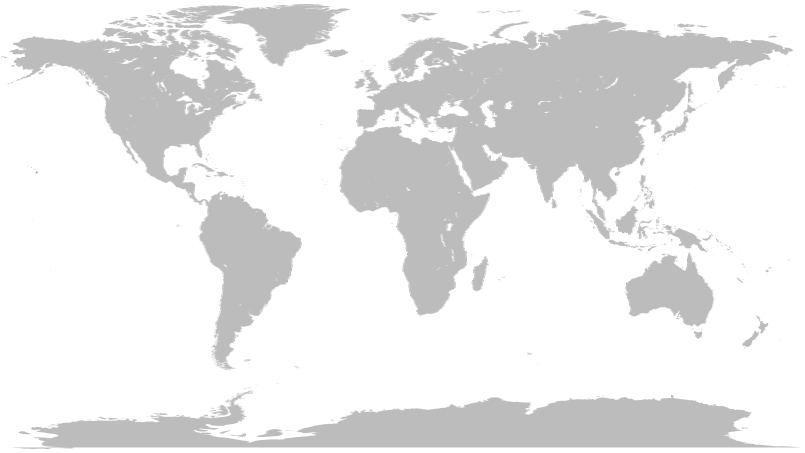
Cydan – Business Overview

Global Orphan Drug Sourcing

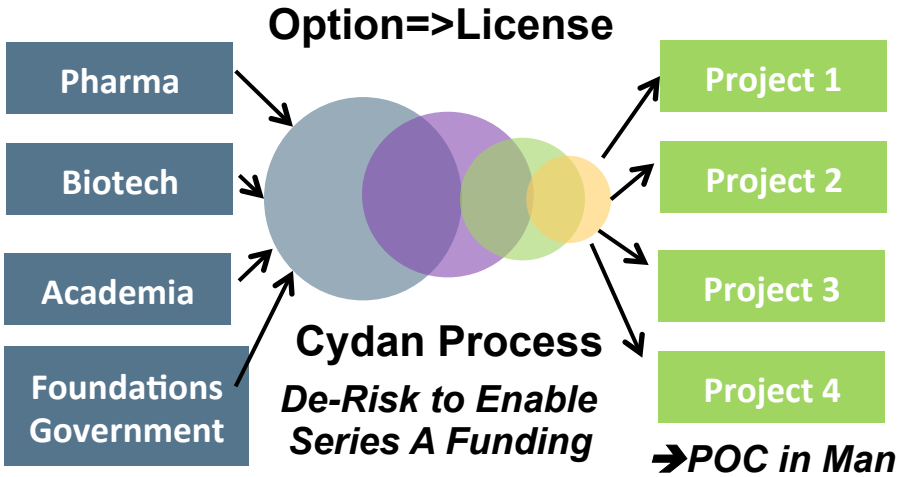


Cydan Portfolio

- Initial high quality pre-clinical data set
- Well-designed, efficiently executed clinical studies

=> Leverages Cydan infra-structure and access to capital to found multiple NewCos

Cydan Diligence/De-risking Process



Societal Benefits

- Higher probability of success from portfolio
- Better drugs with disease-modifying impact
- In line with a value-based outcomes approach
- Efficient use of clinical and financial resources

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Cydan Structure

Investors fund Cydan, LLC

- Cydan LLC forms Cydan Development as 100% owned C Corp subsidiary

Cydan, LLC Funds Cydan Development

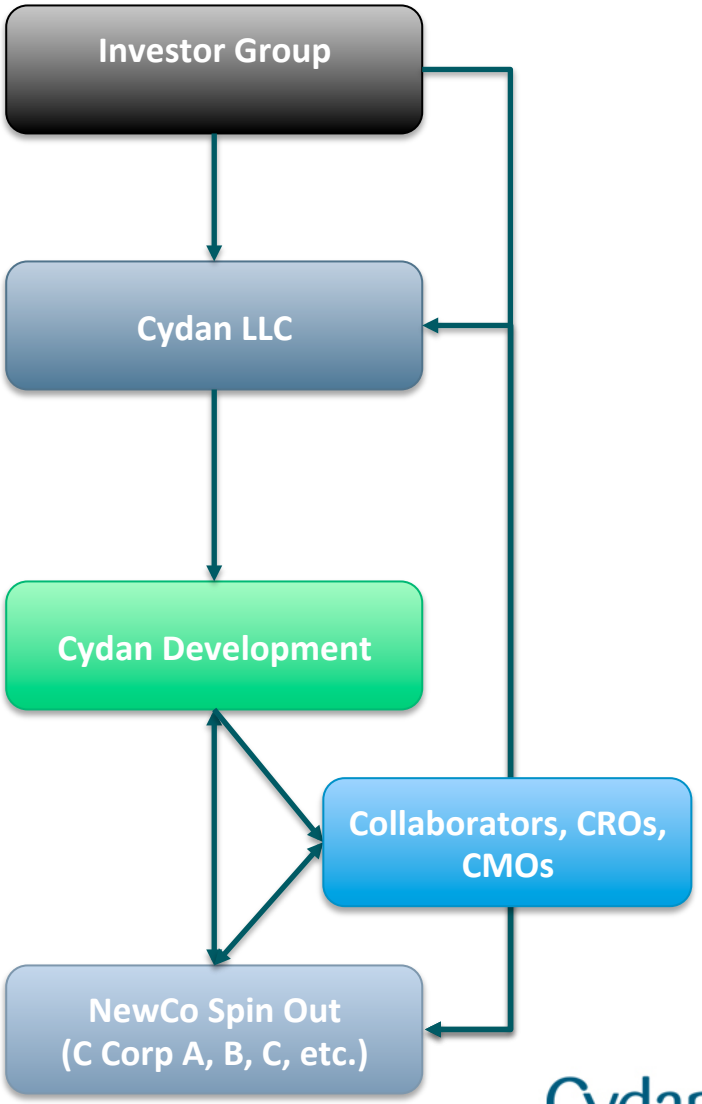
- Cydan, LLC contracts Cydan Development, which employs management team

Cydan Development De-Risks Assets

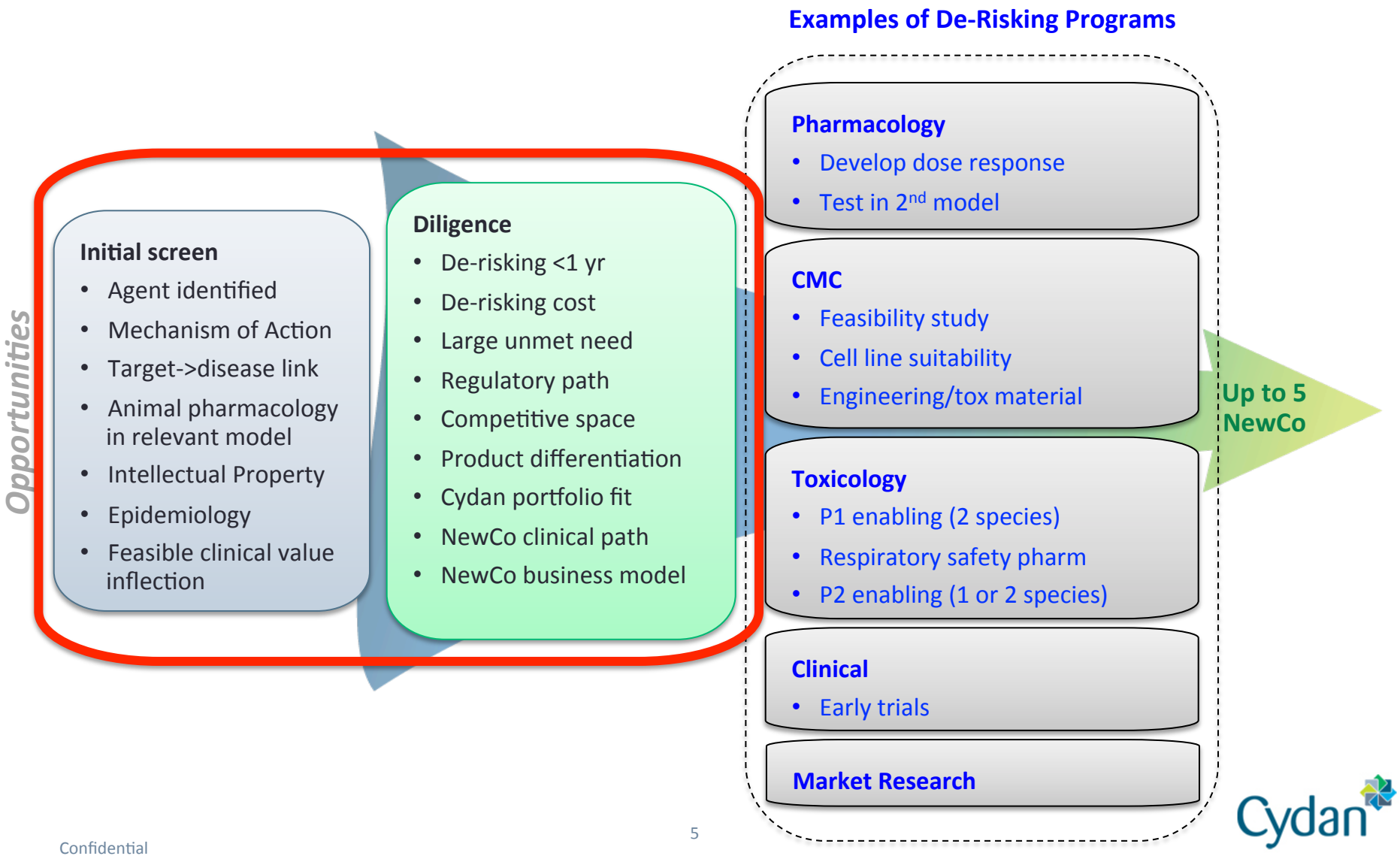
- Management team identifies & de-risks promising assets
- Engages outside service providers to de-risk

Rare Disease NewCo

- Cydan Development provides continuity with NewCo



The Cydan Diligence Approach



Cydan Criteria for Advanced Diligence

Criteria	Example
Asset identified (Phase xx drug candidate, failed on efficacy, no SAE)	✔
Large unmet need; no disease modifying treatment available	✔
Competitive Target Product Profile; novel target and mechanism	✔
Clinical biomarker for early Proof of Mechanism and/or Concept	✔*
In vitro → *in vivo* preclinical → human-disease link	✔
Strong foundation/patient advocacy	✔
Commercial model for NewCo; early exit or product approval	✔
Suitable for Cydan de-risking (<=$2M and ~12 months)	✔

* To be determined

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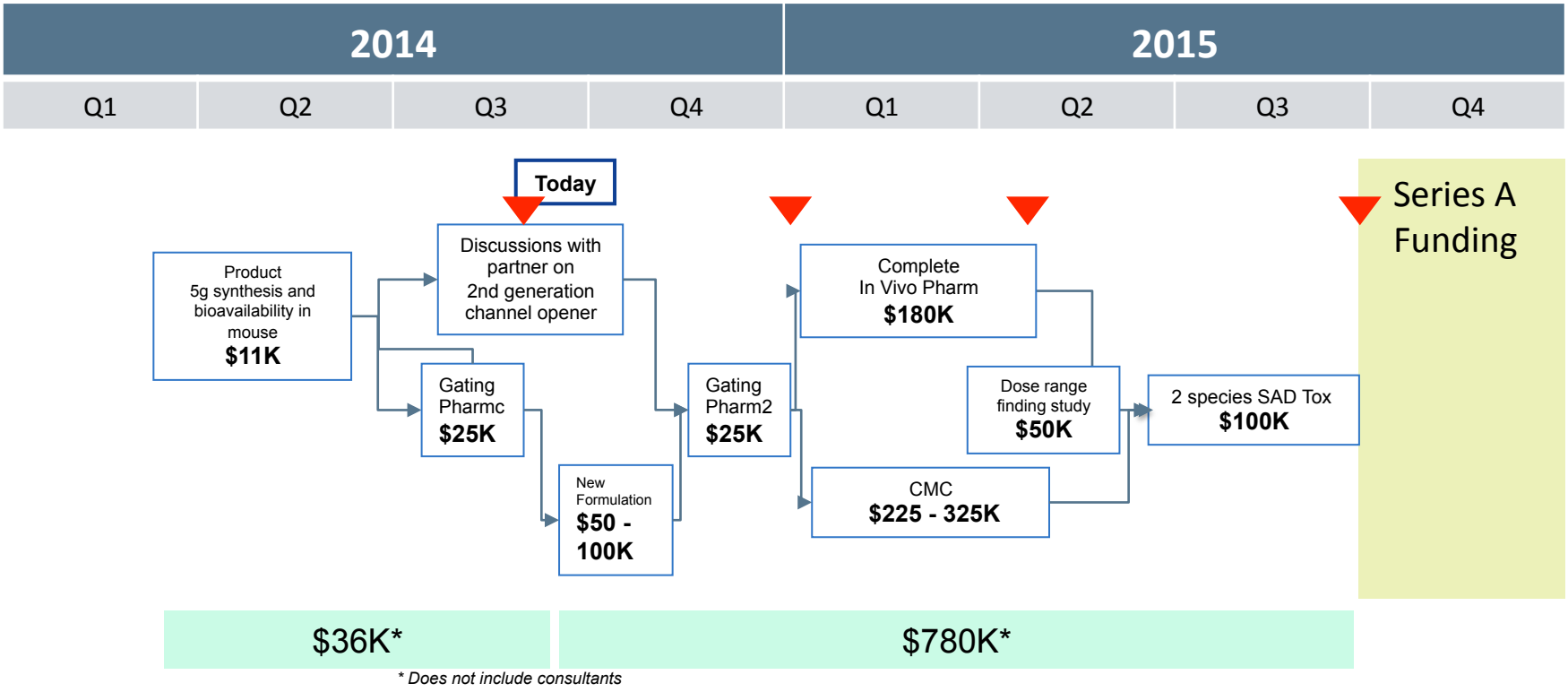
Project Timeline and Estimated De-risking Activities



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Cydan Disease Prioritization

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Criteria Employed to Prioritize Diseases

Criteria	Description
Unmet Need	• Significant level of morbidity and/or mortality • No disease modifying therapies; marginal symptomatic improvement with SOC
Disease Understanding	• Etiology of rare disease; genetic, monogenic, acquired, etc. • Level of confidence around current preclinical models • Translation to clinic & probability of success • Target Product Profile likely to achieve reimbursement
Clinical Landscape	• Homogeneity of patient populations • Natural history well-documented; reliable patient registry available • Clinical research landscape (current and future programs) • Existing centers of excellence and established trial sites/network
Regulatory	• Regulatory precedence and/or agreement on clinical endpoints • Potential future requirements for approval
Development Competition	• Current standard of care (SOC) • Programs in development by MOA; number of disease modifying agents in development • M&A, licensing and ongoing investment
Business Model	• Treatable patient population and current prevalence minimum: ~3000 (US/EU/ROW) • Driver of patient numbers (incidence, prevalence - disease dependent); special populations & geographies • Level of severity addressed given clinical benefit with SOC • Presence and influence of patient advocacy and foundations

Identification of Priority Diseases

- Performed initial screen on >1100 diseases
  - Thomson Pharma Cortellis 2013 search of products with discovery/ preclinical/clinical data to ensure established disease pathway and molecular understanding
  - Orphanet list of rare diseases (http://www.orpha.net)
  - Team list from prior experience and network
  - Current or passed diseases from passive & active deal flow
- Based on prevalence (~1:100,000), incidence and scientific evidence, identified 120 diseases for initial team review
  - Excluded diseases with:
    - Marketed disease modifying therapies and/or little-to-no unmet need
    - Epidemiology numbers below Cydan threshold to support NewCo business/commercial model (~3000 in the US/EU/ROW)
    - Weak or no scientific data identifying or supporting intervention
- Further diligence on 120 diseases; prioritized ~20 diseases

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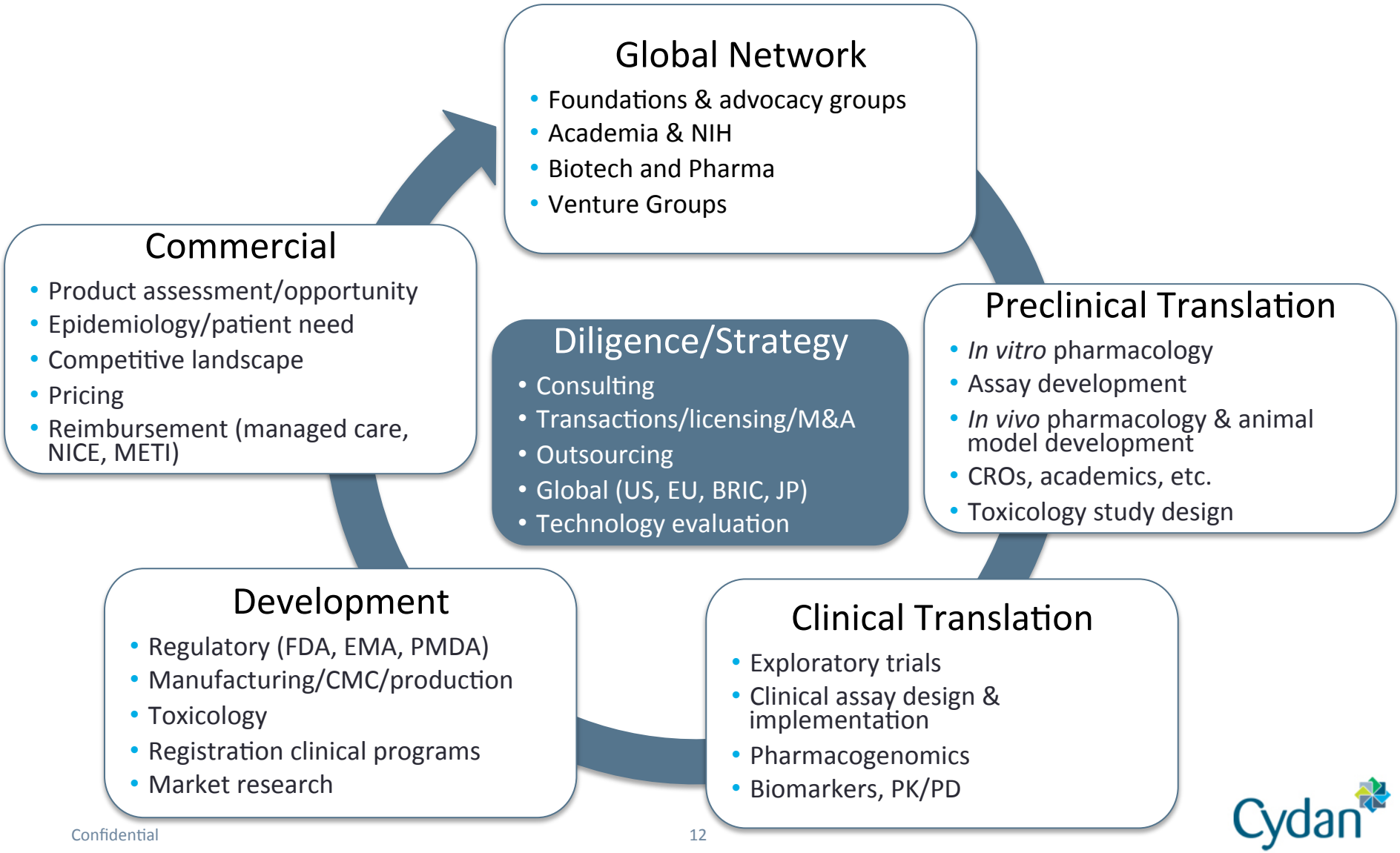
Cydan Disease Portfolio – September 2014

Priority	Exploratory	Technology	Opportunistic
Myotonic Dystrophy	Dystrophic Epidermolysis Bullosa	AAV/ Lentiviral GT	Ataxia Telangiectasia
Friedreich Ataxia	Spinal Muscular Atrophy	RNAi	Spinal Bulbar Muscular Atrophy
CMT2A (all CMT)	SCA-3 (Spinal Cerebellar Ataxia)	Blood Brain Barrier	Leber Hereditary Optic Neuropathy (LHON)
Rett Syndrome	Duchenne Muscular Dystrophy	Stop Codon	Oculopharyngeal Muscular Dystrophy
Fragile X Syndrome	ALS	Exon Skipping	Cerebrotendinous Xanthomatosis
Ototoxicity (Chemotherapy)	β-Thalassemia	microRNAi	Neuromyelitis Optica
Achondroplasia	Osteogenica Imperfecta	CRISPR/Cas-9	Carbamoyl Phosphate Synthetase I
Neurofibromatosis (NF-1)	Choroideremia		Dravet Syndrome
Sickle Cell Disease	Stargardt		α-1 Antitrypsin Deficiency
Retinitis Pigmentosa	Primary Progressive MS		
Niemann Pick Disease			
Phenylketonuria (PKU)			
Epidermolysis Bullosa Simplex			

Cydan Team Expertise



The Cydan Team

Chris Adams, PhD, MBA
Chief Executive Officer

James McArthur, PhD
Chief Scientific Officer

Aileen Healy, PhD
Vice President, Preclinical Dev

Cristina Csimma, PharmD,
Director and Advisor

Laura Alessio
Executive Administrator

Cydan: An Orphan Drug Accelerator

- Disease Area:
  - Orphan diseases, therapeutic area agnostic (excluding oncology)
  - Focused on disease-modifying therapies for high unmet-need conditions
- Strategy: Outsourced approach to de-risking and delivering high quality therapeutic products in a highly cost-effective manner
- Business Model : Option=> License/Spin Off =>Asset Sale/Exit
- Expertise: Team of executives with many years of developing drugs, as well as founding and leading venture-backed companies
- Financing from top tier venture and strategic investors through human proof of concept
- Opportunity: address unmet need in rare and orphan diseases by spinning off up to 5 NewCo's in 4 years

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