

DARPin Technology

A Robust Platform for the Generation of Novel Therapeutic Proteins

April 2010

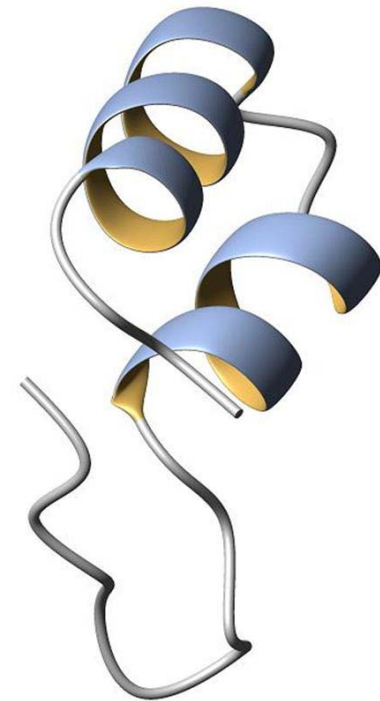


Molecular Partners: Corporate Overview

DARPin Platform: Robust Product Engine

MP0112: Clinical Showcase for the Platform

Quality Biologics for a Differentiated Pipeline



Molecular Partners at a Glance

Validated technology, solid financing and strong corporate partners



Corporate

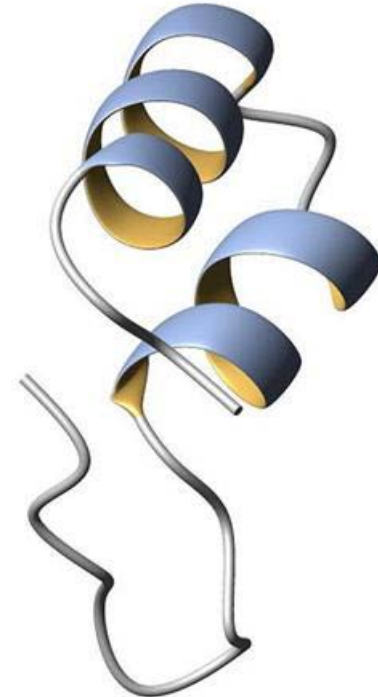
- Swiss corporation with 38 employees (very international team)
- Experienced and strong management and development team (ex Roche, Micromet, Domantis, Apoxis...)
- Strong investors: Essex Woodlands, Index Ventures, J&J Dev Corp
- Total of 65m CHF secured (46m CHF Series B in Dec 2009)

Technology and Products

- Strong pipeline (lead in clinical phase I/IIa)
- Validated and differentiated DARPin-platform
- Strong IP position with exclusive FTO

Partners

- Blue-chip pharmaceutical companies (Roche, Centocor, Bayer)
- All success milestones reached (in every collaboration)
- Partnered products to complement internal pipeline



Management Team and Board of Directors

A Committed Team of Experts



Management

Christian Zahnd, PhD
Chief Executive Officer

Andreas Emmenegger, EMBA
Chief Financial Officer

Michael Stumpp, PhD
Chief Scientific Officer

Patrick Amstutz, PhD
Chief Business Officer

Henry Hsu, MD
Chief Medical Officer, Consultant

Board of Directors

Jörn Aldag (CEO AMT)
Chairman

William Lee
SVP Research Gilead

Francesco de Rubertis
Index Ventures

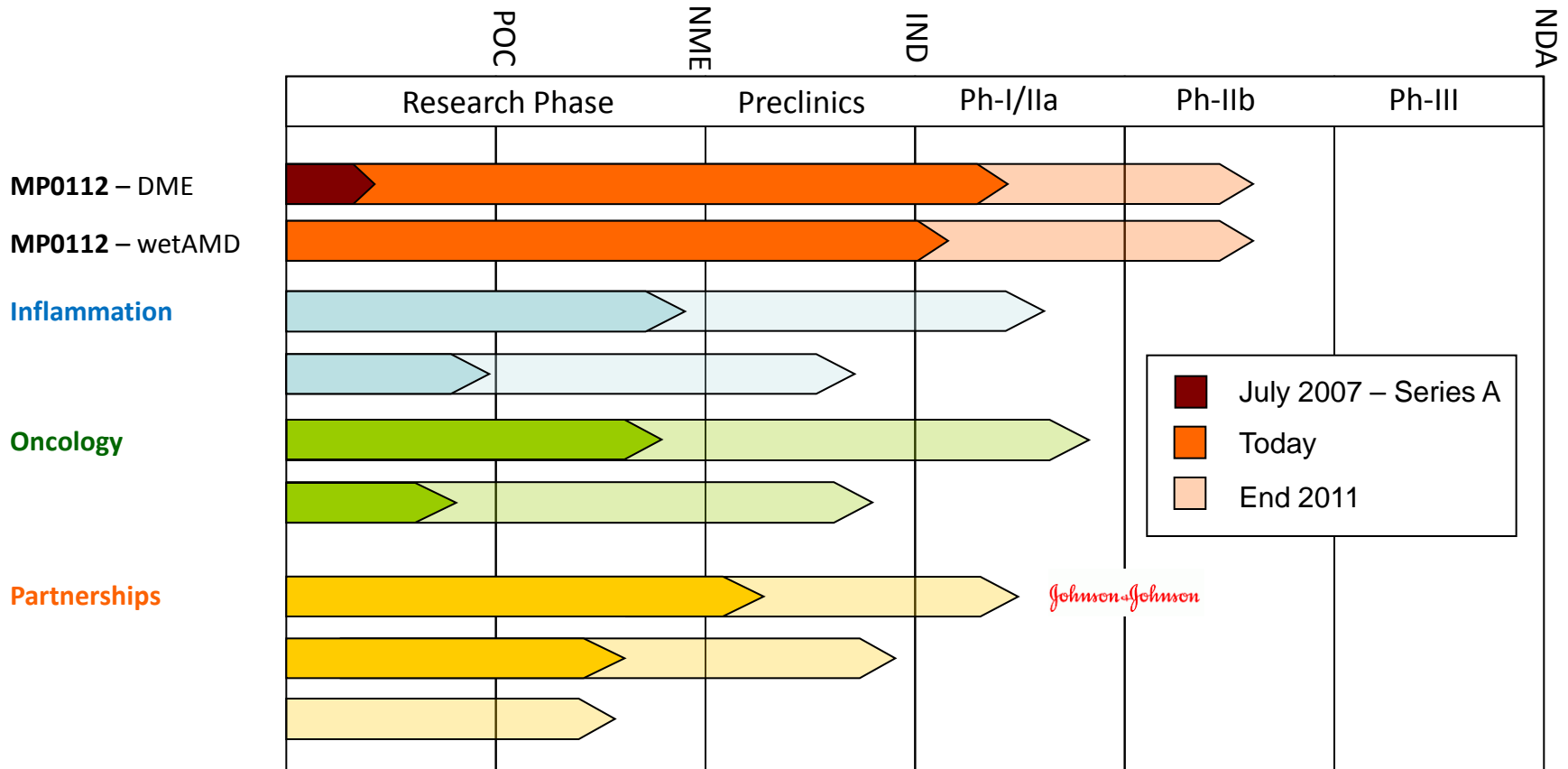
Petri Vainio
Essex Woodlands Health Ventures

Prof. Andreas Plückthun
University of Zurich

Christian Zahnd
CEO Molecular Partners

Building the Pipeline

Significant pipeline generation with little resources



Corporate Partners of Molecular Partners

Collaboration track-record with several blue-chip partners



Schering (2005)

- Fee-for-service:
solving crystal structures of DARPin-target complexes
- Therapeutic application
Development of a DARPin for oncology (non-exclusive)



Roche (2007)

- DARPins for various applications (non-exclusive)



Johnson & Johnson / Centocor (2008)

- Therapeutic application of DARPins in inflammation
- DARPins against two targets (exclusive)
- Significant commercials involved
- First product in preclinical development



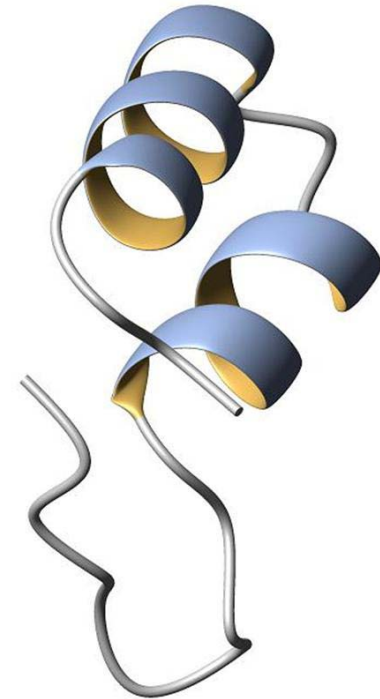
- In total, more than 15 targets in partnering
- All milestones reached!

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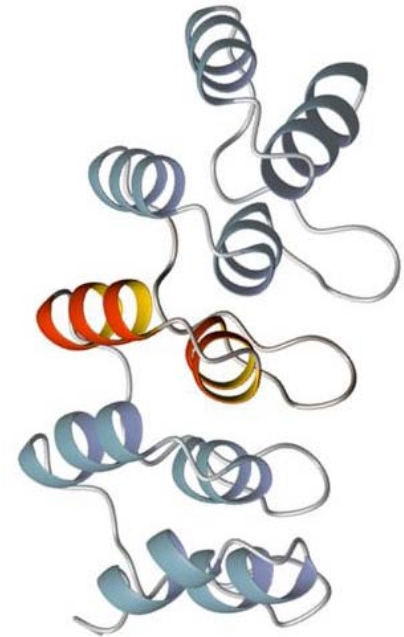
Quality Biologics for a Differentiated Pipeline



DARPin®: Platform for Improved Protein Therapeutics

An natural class of binding molecules

- Optimal binding proteins for any target based on nature's genetic diversity
- Tailor-made therapeutics with pronounced class behavior
 - Small size 14 - 20 kDa
 - High potency < 5 - 100 pM
 - High stability and solubility soluble at > 100g/L
 - Cost efficient production > 10g/l
 - Good safety profile no/low immunogenicity
 - Tunable PK properties PK toolbox (min – weeks)
 - Flexible design multiple specificities
- Fast and robust DARPin generation process: Identification of product candidates in less than a year from complex libraries



The Many Strengths of the DARPin Technology

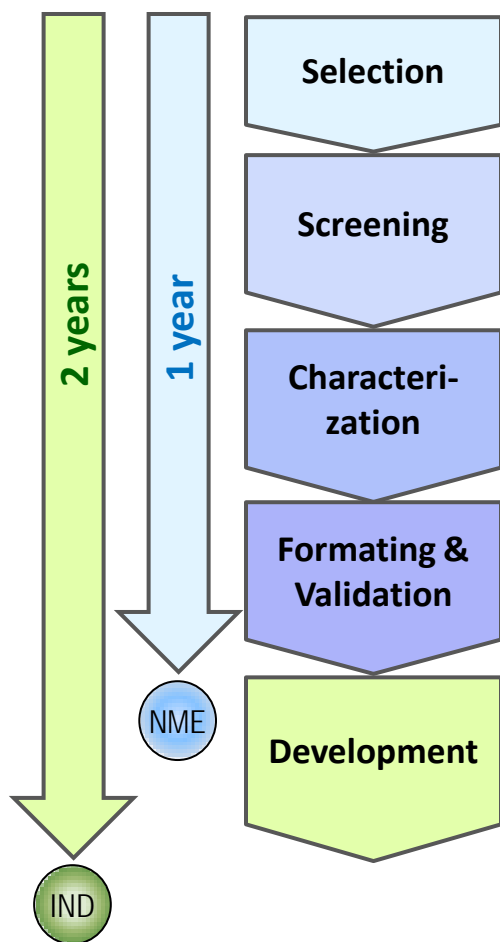
Combining the strengths of small molecules and monoclonal antibodies (mAb)



	small molecule	mAb	DARPin	Commercial / therapeutic advantage
High Affinity	✗	✓	✓	Increased potency
High Specificity/Selectivity	✗	✓	✓	Less side effects, conformational binding
Low toxicity / high safety	✗	✓	✓	Broad applicability
Stability	✓	✗	✓	Formulation and administration
Tissue / tumor penetration	✓	✗	✓	Novel therapeutic windows
Ease of manufacturing	✓	✗	✓	Development, enabling applications
Alternative delivery routes	✓	✗	✓	Pulmonary and oral(?) delivery
Time-to-product	✗	✗	✓	Very fast discovery and PC development
Multi-specific formats	✗	✗	✓	Dual-targeting / localized action
IP Situation / FTO	✗	✗	✓	Access to targets, no royalty stack

The DARPin Platform as a Powerful Compound Engine

In 10 months to the development candidate, in 2.5 years to INDs



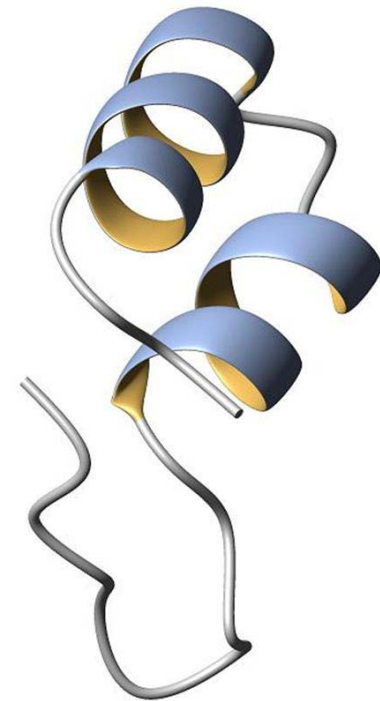
DARPin	Advantage	Months
10 ¹²	Large and high quality library Binder enrichment	1
100-200	No affinity maturation Highest affinities (single digit pM) Functional screening	3
10-20	No lead optimization Prominent class behaviour	3
2	Flexible format choice Optimized PK profile	3-6
1	Fast preclinical development High yield bacterial manufacturing	12

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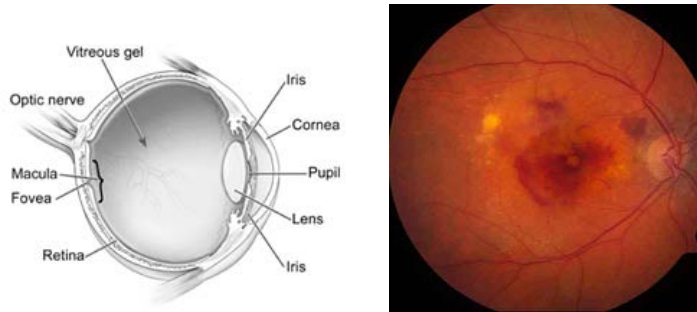
MP0112: Clinical Showcase for the Platform

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MP0112 – A Novel VEGF Antagonist with Blockbuster Potential

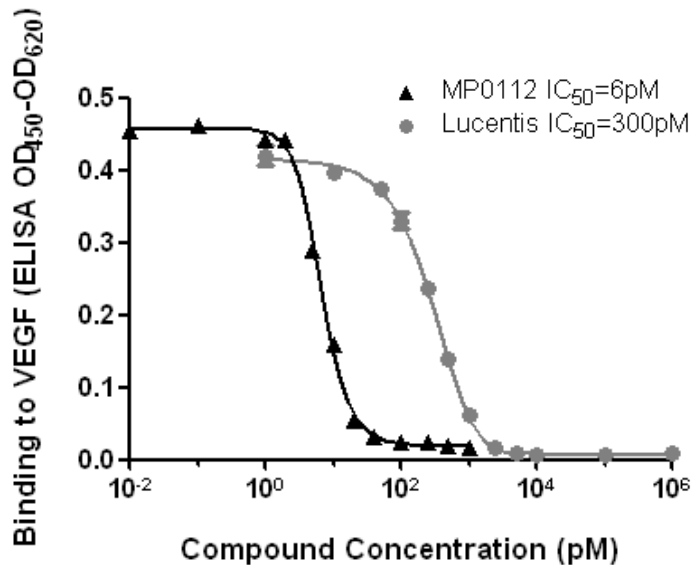
Ocular:
wet AMD and DME



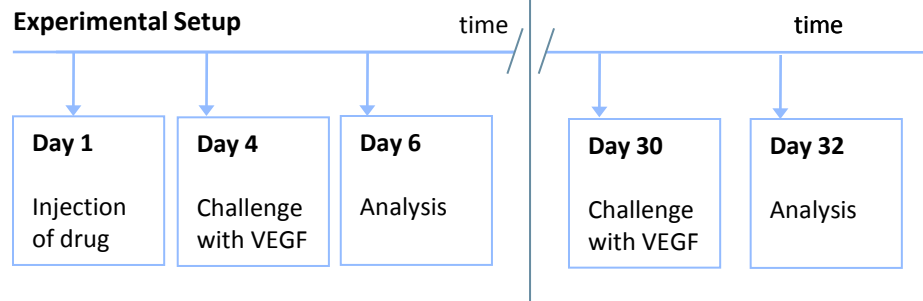
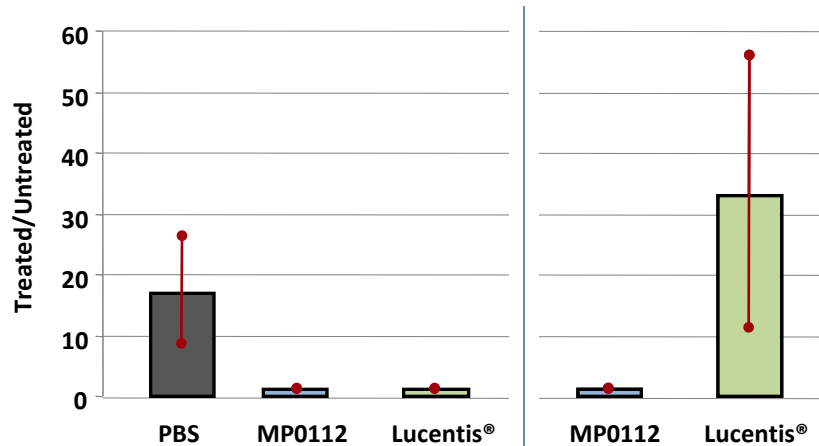
- Several Large Indications
 - Age-related macular degeneration (wet AMD)
 - Diabetic macular edema
 - Oncology

- Markets of VEGF antagonists
 - 2008: more than 6bn USD/y
 - 2013: more than 14bn USD/y

- Competitive Advantage
 - Efficacy: 50 times more potent than Lucentis
 - Longer (2x) ocular half-life than Lucentis
 - Safety and patient convenience: 3-4 times less frequent injections
 - Intellectual property: access to target (blocked for antibodies)
 - POC for eye-drop delivery



MP0112 – Prolonged Activity after Intravitreal Injection

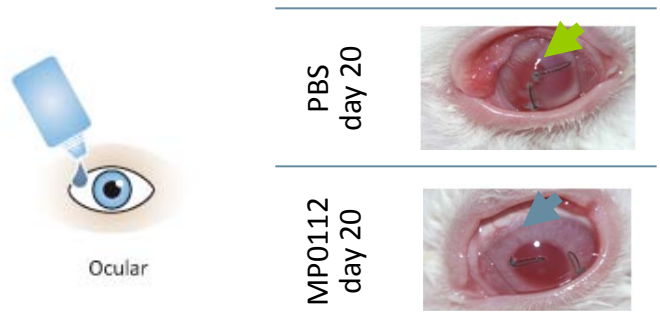


- Full activity in relevant rabbit model (intravitreally injected)
- Significantly prolonged activity (compared to SOC, Lucentis)
- 3-4 times less frequent dosing feasible
- Limitations of frequent dosing
 - Severe side effects (inflammation)
 - Patient convenience
 - Doctor's convenience

Eye-Drops as an Opportunity for MP0112

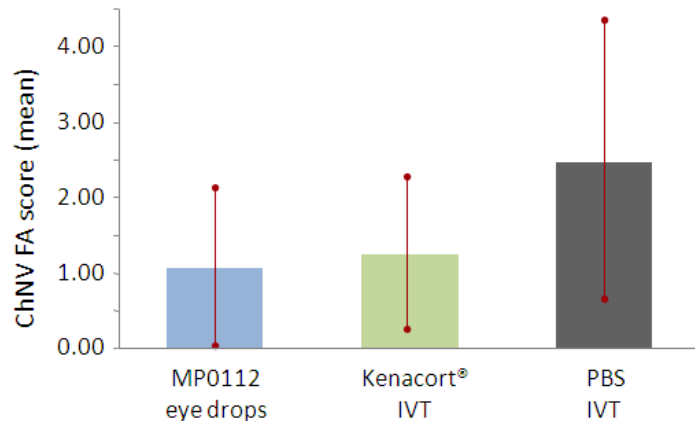
Full activity in the front and back of the eye after topical administration

Active in the front of the eye (rabbit)



- Eye drops of MP0112 are as active as injected positive control (steroid!)
- 4x daily drops sufficient to get full activity in relevant rat eye-background model

Active in the back of the eye (rat)



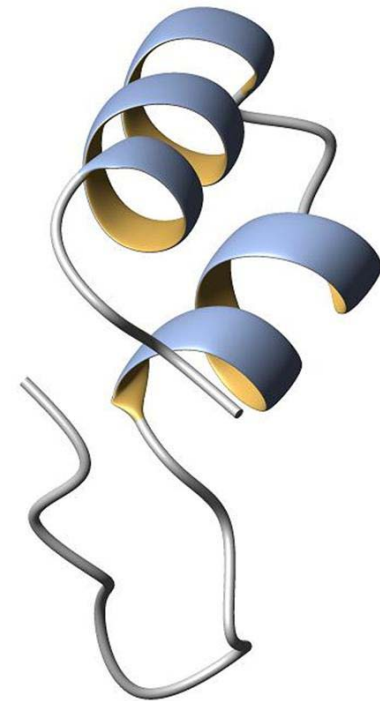
- No side effects or toxicities after 22 days of instillation
- Effect demonstrated in the back and the front of the eye
- Class behavior (technology opportunity) also interesting for other targets

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Differentiation of the DARPin Platform

Current status and opportunities for the future

Novel sites of action

- Solid tumors ✓
- BBB *
- Intracellular application *

Multispecific actions

- Multiple MoAs ✓
- Polyclonal targeting ✓

Administration

- Pulmonary delivery ✓
- Eye drops ✓
- Oral administration *

Localized action

- Localized antagonists ✓
- Immuno-toxins ✓
- Radio immunotherapy ✓
- Effector cell recruitment (Bite) *



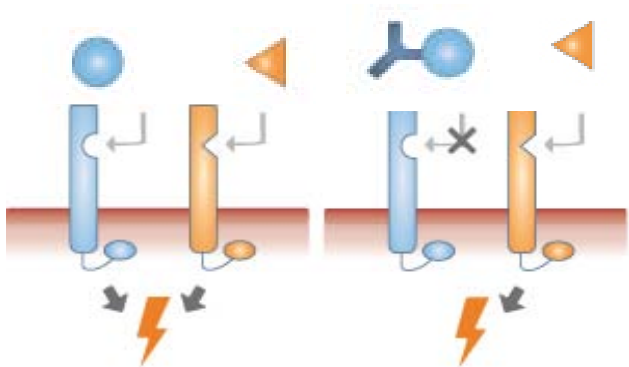
Allosteric Binding

- GPCRs ✓
- Ion channels ✓
- (Metallo-)proteinases ✓

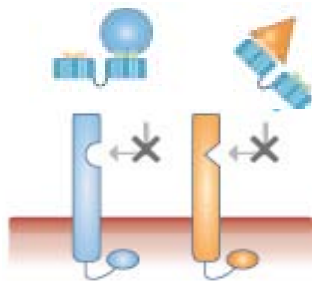
- | | |
|---|--------------------|
| ✓ | POC or program |
| * | ongoing evaluation |

Multi-Specific DARPins

Many cytokines act synergistically – inhibition at neuralgic points



disease progression / evasion



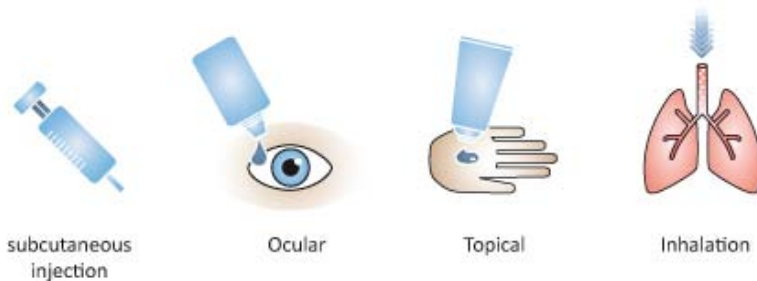
cure

- Multi-specific DARPins
 - Multi-specific DARPins to block several mechanisms of action (MOA)
 - Addressing multiple targets or multiple epitopes
 - Higher efficacy and less compensatory biological effects (evasion)
- Unchanged biophysical properties
 - Stability, expression and formulation as for monospecific DARPin
 - Format toolbox to pick right combination
- Application in oncology, inflammation, CNS and many areas

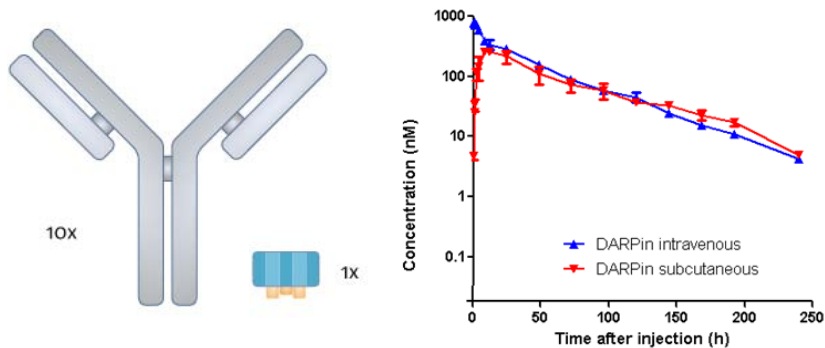
Novel Administration Routes

Topical delivery are possible due to DARPin characteristics

Patient-friendly delivery routes



Small size and solubility at highest concentration



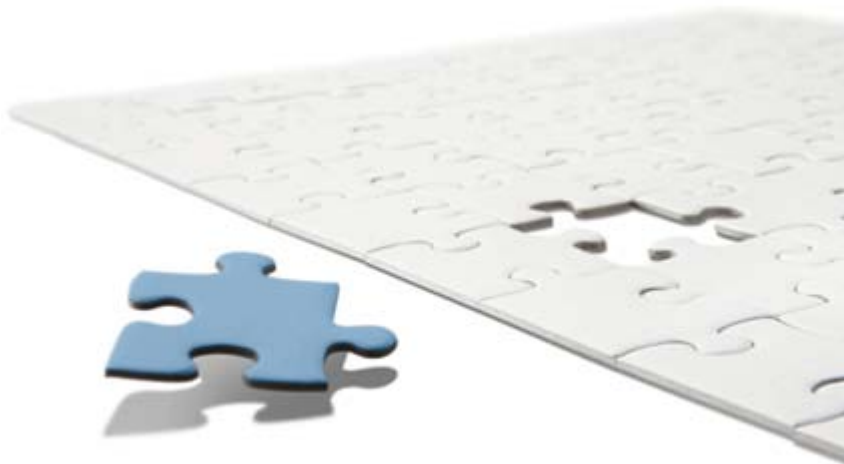
- Subcutaneous injection (s.c.)
 - 100 x more DARPin per volume possible than for best antibodies
 - Delivery of large amounts in small volumes
- Topical administration (e.g. eye drops)
 - Improved tissue penetration (small size)
 - High potency and concentration allow for topical administration (e.g. eye drops)
- Pulmonary delivery
 - Delivery by inhalation (intranasal and intratracheal)
 - Therapeutic doses systemically detectable upon inhalation
- Further opportunities
 - Oral, transdermal, BBB, intracellular...

Molecular Partners

A Unique value proposition



- Transforming and validated technology platform
 - Robust and validated platform
 - Strong IP position and full freedom to operate
- Validated and well differentiated pipeline
 - Best-in-class lead asset in clinical phase I/IIa (ophthalmology and potential in oncology)
 - Broad follow-on pipeline building on DARPin USPs
 - Extremely fast and cost efficient development of DARPin candidates
- Strong team
 - Very committed, blue-chip investor base
 - Team with track record to have delivered
- De-risked business model through corporate blue-chip partners
 - Collaborations with key pharmaceutical companies in the field
 - Access to substantial non-dilutive financing for the internal pipeline
 - Benchmark exit opportunities with Domantis (450m\$) and Adnexus (430m\$)



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