



BioArctic

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Snapshot of BioArctic

Company overview

- ▶ **Research oriented biopharma company** focusing on development of drugs in areas with a large unmet medical need, such as Alzheimer's and Parkinson's Disease, and Complete Spinal Cord Injury
- ▶ **Founded in 2003** by Prof. Lars Lannfelt and Dr. Pär Gellerfors
- ▶ **Flexible organization** with approx. 25 FTEs complemented with consultants and close collaborations with external partners
- ▶ **Strong cash balance** of > SEK 1 billion
- ▶ **Headquartered** in Stockholm, Sweden
- ▶ **Listed on Nasdaq Stockholm** since mid-October 2017

Investment highlights

- ▶ **Highly educated personnel** with proven track record of bringing drugs from idea to market
- ▶ **Innovative portfolio** of differentiated first-generation disease modifying agents in Alzheimer's and Parkinson's Disease, diagnostics and pioneering Complete Spinal Cord Injury treatment
- ▶ **Strategic collaborations** with Eisai and AbbVie validating highly innovative research organization and unique product candidates
- ▶ **Successful business model** with proven track record
- ▶ **Attractive combination** of fully financed partner projects and cutting-edge, well funded, proprietary R&D pipeline with substantial market and out-licensing potential

Long-standing and Extensive Partnerships

Eisai collaboration and license agreements



Description of agreements

- Two previous research collaborations regarding disease modifying therapies for Alzheimer's Disease that resulted in two licenses of the A β oligomer/protofibril antibodies BAN2401 and BAN2401 Back-up
- Third research collaboration ongoing regarding a new target as a disease modifying therapy for Alzheimer's Disease

Milestone / royalty potential

- The total aggregated value of the research collaborations and license agreements is approx. EUR 218m in signing fee and milestones plus high single digit royalties
- BioArctic has received approx. EUR 47m for the research collaborations, signing fees and milestones

AbbVie collaboration agreement



Description of agreements



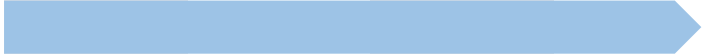






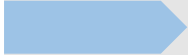





- Research collaboration (entered Sep 2016) regarding alpha-synuclein antibodies as disease modifying therapies for Parkinson's Disease incl. BAN0805 to IND, follow-up compounds and diagnostic
- BioArctic primarily responsible for performing all pre-clinical activities
- Option for AbbVie for a license to develop and commercialize the antibodies

Milestone / royalty potential

- Total potential value of the agreement is up to USD 755m incl. an up-front fee, option exercise fee, and success-based milestones plus tiered royalties
- BioArctic has received an USD 80m up-front payment for the research collaboration

Strategic collaborations with pharmaceutical industry validating potential value and commercialization potential for BioArctic with proven track record of delivering on research collaborations

Strategic Partnerships and Cutting-Edge Proprietary R&D

	PRODUCT CANDIDATE	INDICATION	PARTNER	DISCOVERY	PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3
NEURODEGENERATIVE DISEASES	BAN2401 (anti-A β antibody)	Alzheimer's Disease	  ²⁾					
	BAN2401 (anti-A β antibody)	Down's Syndrome ¹⁾ Traumatic Brain Injury	—					
	BAN2401 Back-up (anti-A β antibody)	Alzheimer's Disease						
	AE1501 (undisclosed)	Alzheimer's Disease						
	AD1502 (undisclosed)	Alzheimer's Disease	—					
	AD1503 (undisclosed)	Alzheimer's Disease	—					
	BAN0805 (anti-alpha-synuclein antibody)	Parkinson's Disease	abbvie					
DIAGNOSTICS & TECHNOLOGY	Imaging and biochemical biomarkers (A β)	Alzheimer's Disease	—					
	Imaging and biochemical biomarkers (α -synuclein)	Parkinson's Disease	abbvie					
	BBB-technology (blood-brain barrier)	Multiple application areas	—					
SPINE	SC0806 (FGF1/device)	Complete Spinal Cord Injury	—					

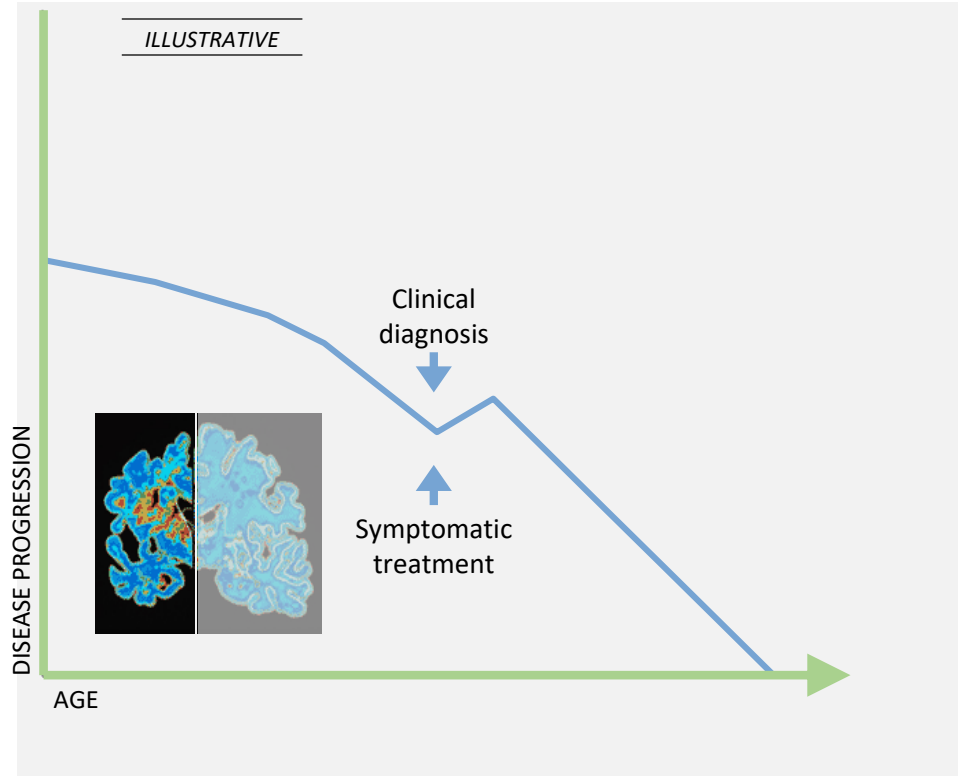
¹⁾ Dementia and cognitive impairment associated with Down's syndrome. Source: Company data

²⁾ Partner with Eisai on BAN2401 for treatment of AD

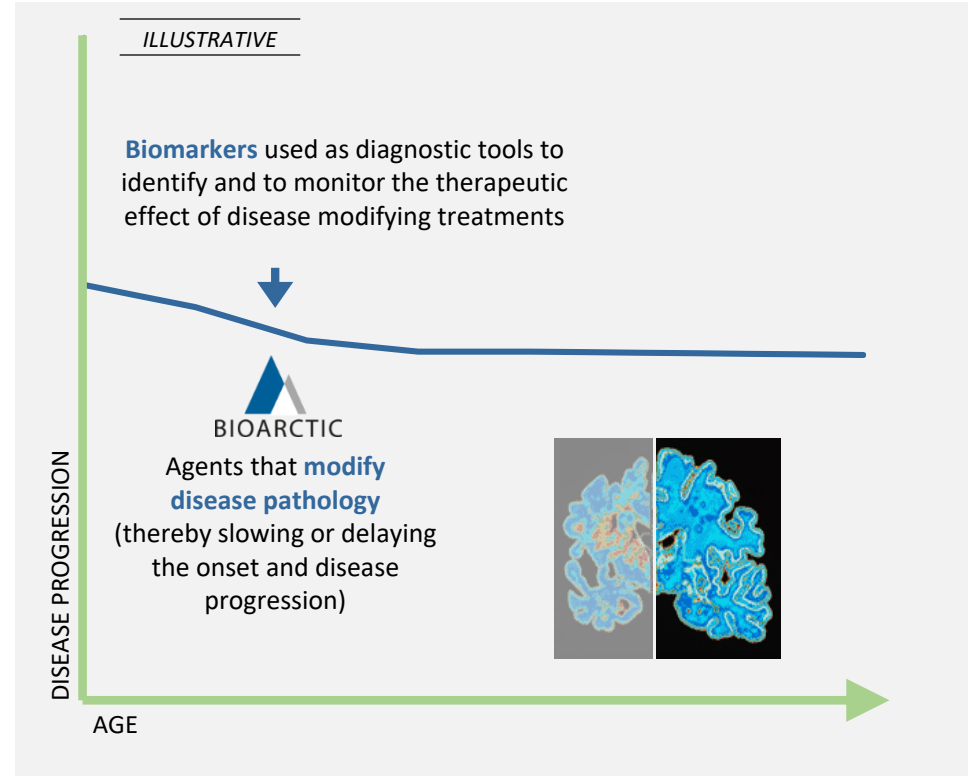
Disease Modifying Agents and Reliable Diagnostics/Biomarkers for Neurodegenerative Diseases

New therapy focus on disease pathogenesis – efforts to delay the neurodegenerative process

Neurodegenerative disease therapy **TODAY**

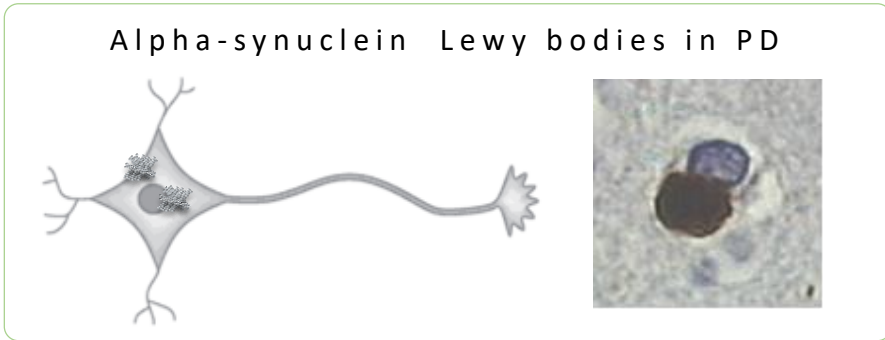
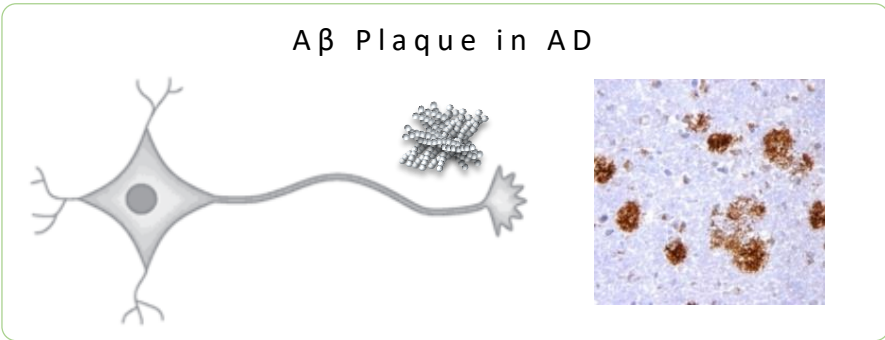
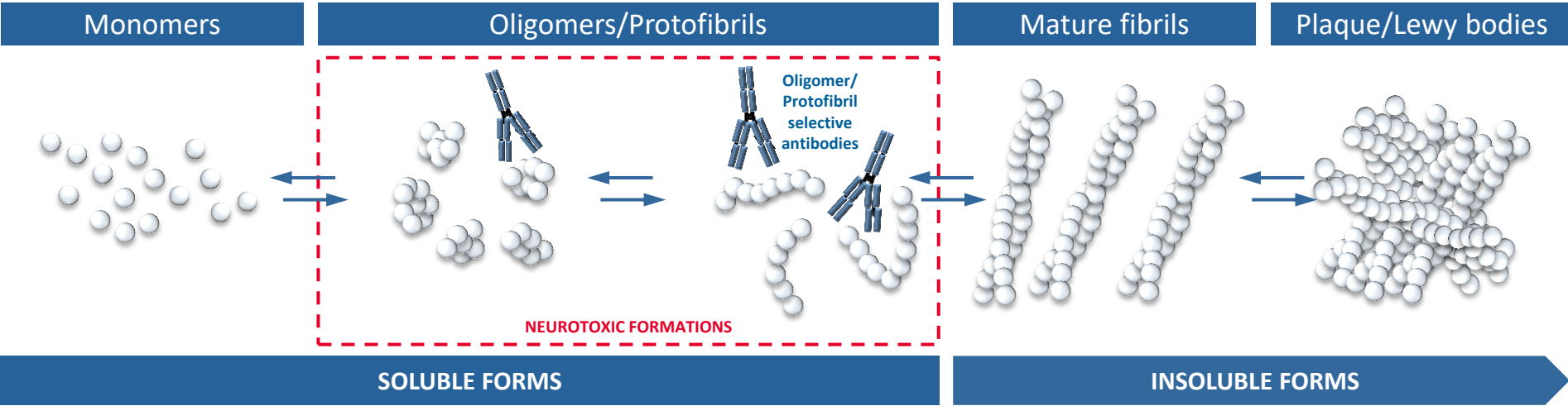


Neurodegenerative disease therapy **TOMORROW**



Significant unmet medical need to be addressed by disease modifying agents and reliable diagnostics/biomarkers

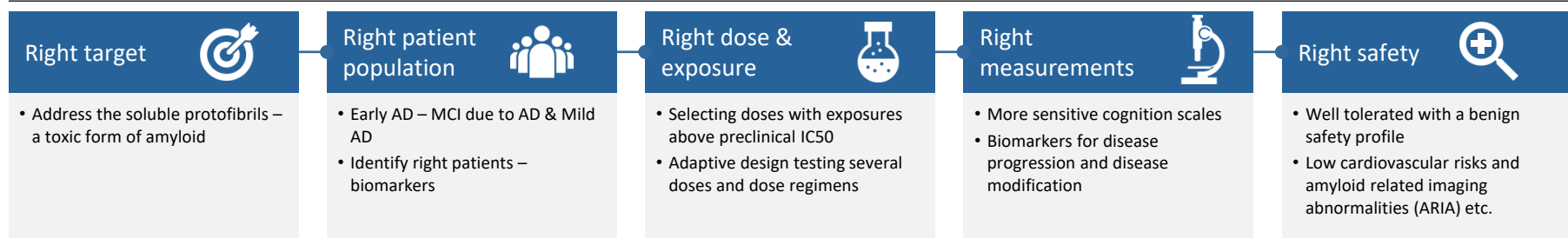
Protein Misfolding is Disease Causing in a Number of Neurodegenerative Diseases Including AD and PD



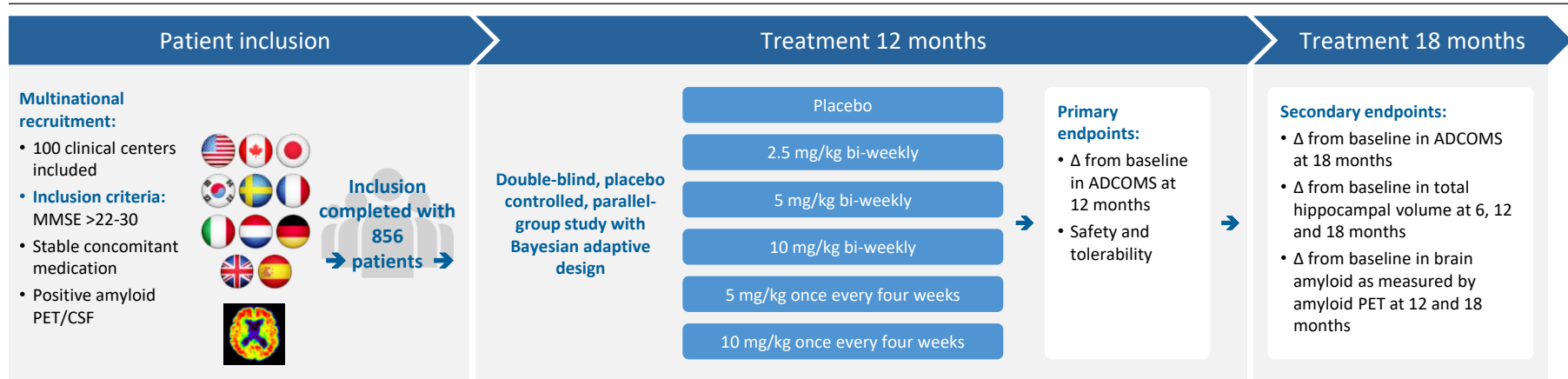
Source: Company information.

BAN2401 – Learnings from Previous Clinical Trials in AD Incorporated in Phase 2b Study Design

Important parameters



Phase 2b study design



Interim read-out of primary endpoint after 12 months in Dec 17 / Jan 18
Full read-out of study after 18 months treatment in Q4 2018 / 1H 2019

Source: Company information.

Note: ADCOMS = Alzheimer's Disease Composite Score, a evaluation tool developed by Eisai.

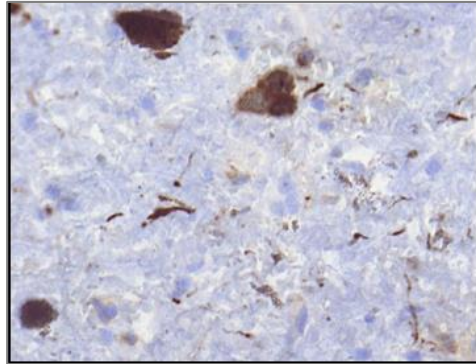
BAN0805 – Groundbreaking Disease Modifying Drug in PD with Rationale for Selective Targeting of Alpha-synuclein Oligomers/Protofibrils

Rationale for targeting alpha-synuclein

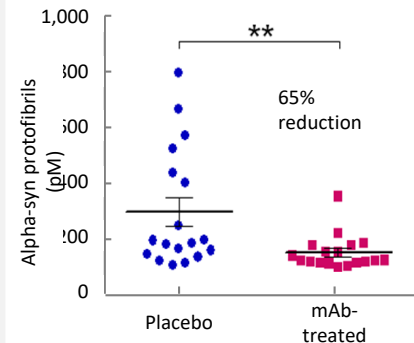
Human genetics

Pathology

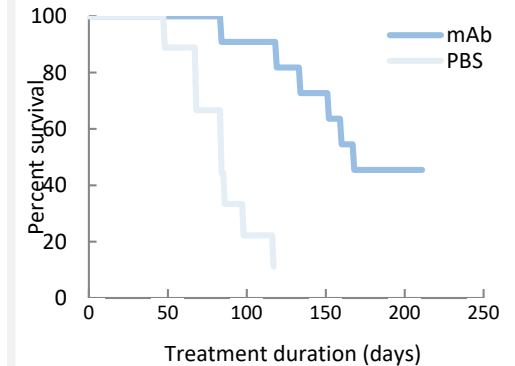
Pre-clinical proof of concept



Reduction of neurotoxic alpha-synuclein oligomers/protofibrils



Increases lifespan



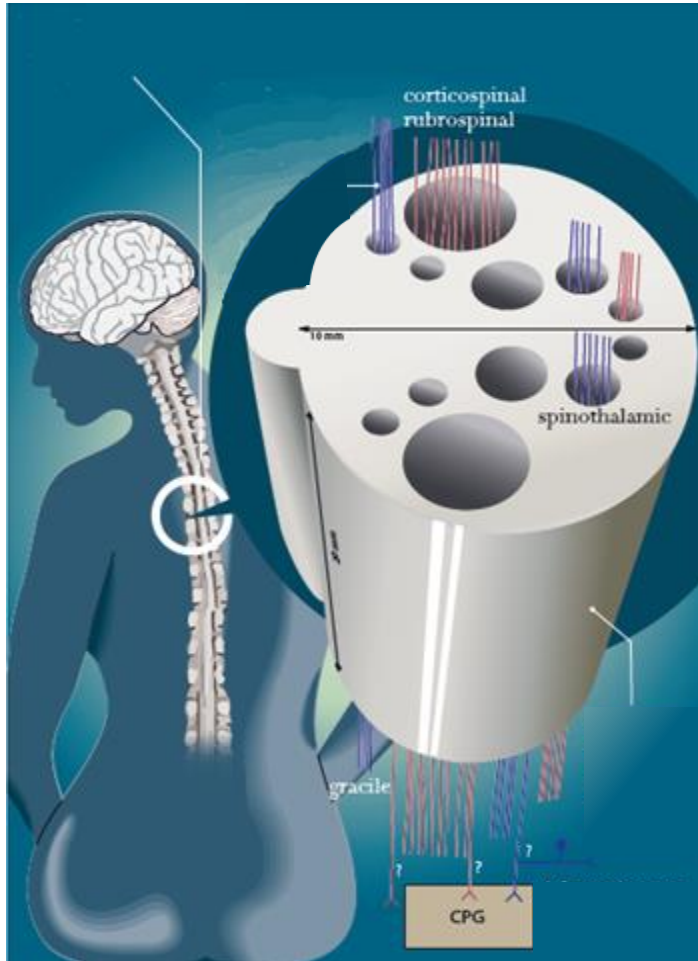
Alpha-synuclein mutations lead to PD or Dementia with Lewy Bodies and are associated with increased oligomer/protofibril formation

Alpha-synuclein deposition is a hallmark of PD pathophysiology and alpha-synuclein oligomers/protofibrils are elevated in PD

Oligomer/ protofibril selective antibody reduces neurotoxic alpha-synuclein oligomer/ protofibril levels, delay disease progression and increase life-span in a PD mice model

SC0806 – Unique Regenerative Treatment of Complete SCI

SC0806 – Regenerative Treatment of Complete SCI



Treatment rationale and project status

SC0806 makes nerve regeneration possible

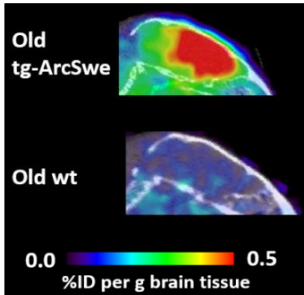
FGF1 activated by heparin	<ul style="list-style-type: none">• Stimulation of central axon outgrowth• Decreases gliosis
Peripheral nerve autografts	<ul style="list-style-type: none">• Optimal regeneration environment
Biodegradable device	<ul style="list-style-type: none">• Provides sustained release of FGF1• Positioning of nerve grafts from white to gray matter

- Surgical implantation of biodegradable SCI device with recombinant Fibroblast Growth Factor 1 (FGF1) and nerve grafts
 - Combination of medical device and new drug from a regulatory perspective
 - Orphan Drug designation in US and EU – granting 7 and 10 years exclusivity, respectively
- Preclinical Proof of concept shown in rats
 - Rat experiments demonstrate nerve regeneration, restored electrophysiology and motor function
 - The motor evoked potential (MEP) has been restored in rats with resected spinal cords
- Clinical Phase 1/2 trial ongoing with SC0806 in patients with complete spinal cord injury
 - Surgery at Karolinska University Hospital in Sweden
 - Rehabilitation for 18 months with Lokomat in Sweden and preparations to include patients in Norway, Estonia and Finland
 - 8 patients included (5 treated with SC0806 and 3 control patients)

Several Novel Approaches to Improve Diagnostics and Treatment

Imaging and biochemical biomarkers in AD

A β protofibril PET tracer



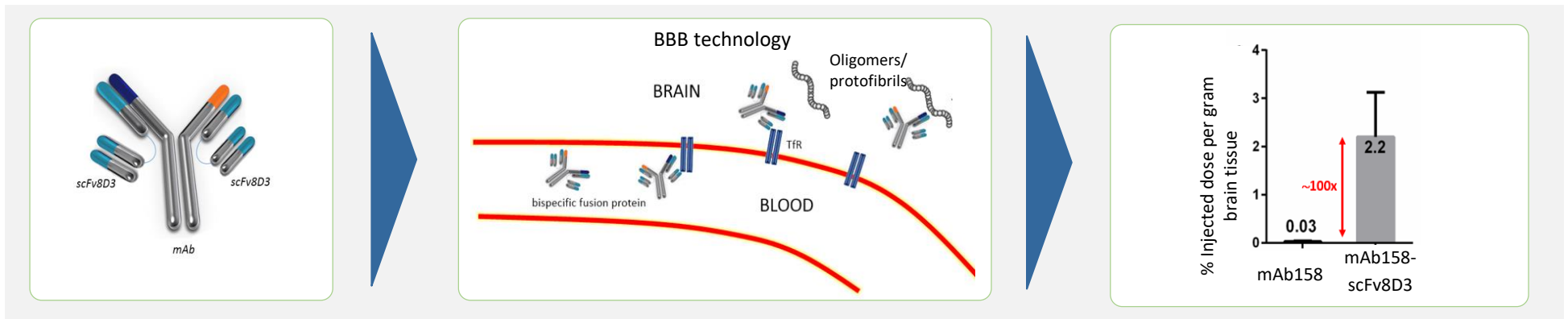
- PET with an antibody-based ligand
- Binding to A β oligomers/protofibrils
- Has short half-life
- Improved BBB penetration

A β protofibril biochemical biomarker



- Sensitive biochemical method for A β measurement in development is of great clinical importance

Blood-brain barrier technology



Source: Sehlin et al 2016 Nature Communications. Hultqvist et al 2017, Theranostics.

**Substantially increased antibody brain uptake by BioArctic's
brain shuttle technology**

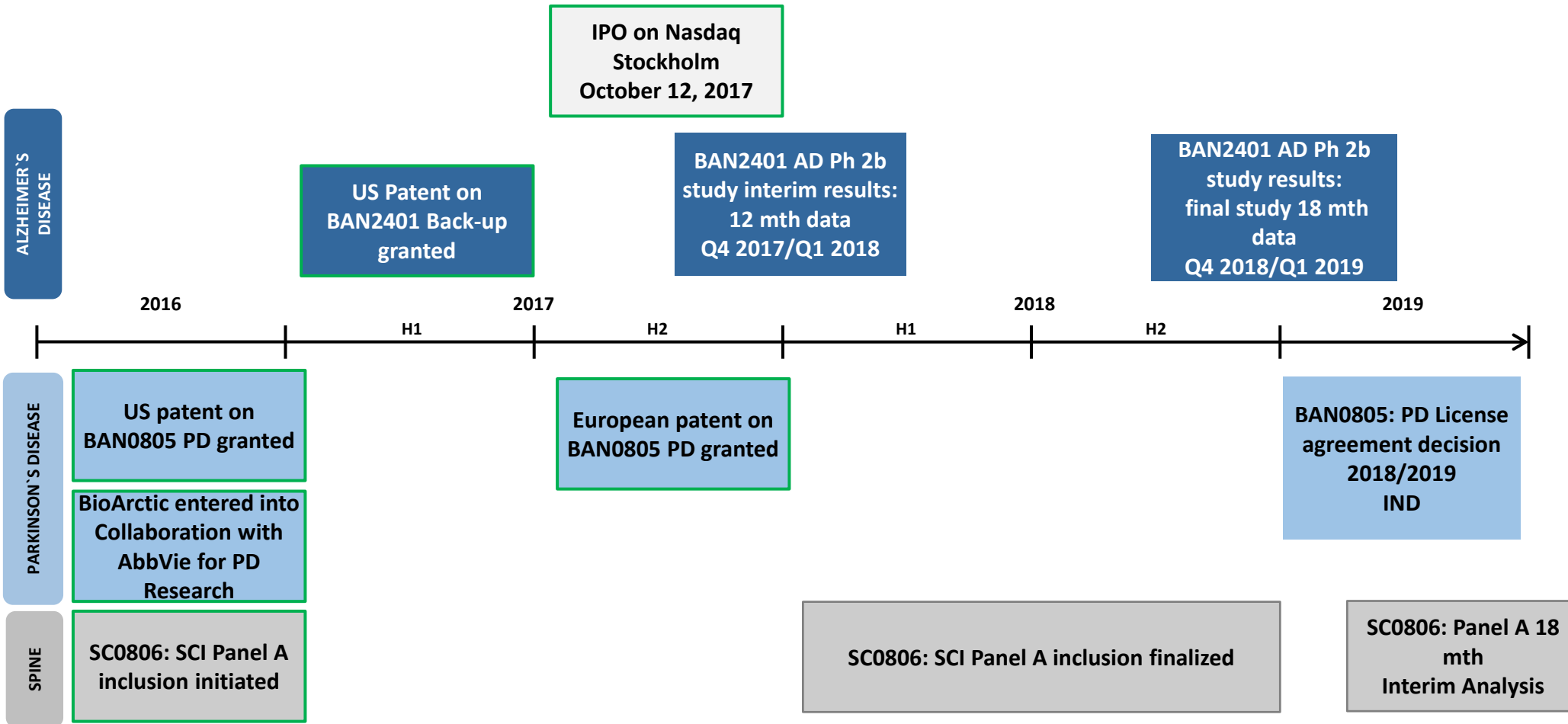
Successful IPO on Nasdaq Stockholm mid-cap in October

IPO and new share issue October 12

- ▶ **Largest total offering in Swedish biotech since 2000.** Total offering value of SEK 805m (USD 97m)
- ▶ **Attracting renowned institutional shareholders.**
 - ▶ A number of well renowned international institutional investors, among others HBM Healthcare Investments, as well as Swedish institutional investors such as AP2, AP3, AP4, Handelsbanken Fonder and Swedbank Robur are shareholders in BioArctic
- ▶ **Funding of own R&D projects secured.** The new share issue rendered approx. SEK 550m (USD 66m) in funding for BioArctic's own R&D projects



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