Corporate Presentation

Christopher U Missling, PhD | President & CEO

Nasdaq: AVXL | March 2019

SAFE HARBOR

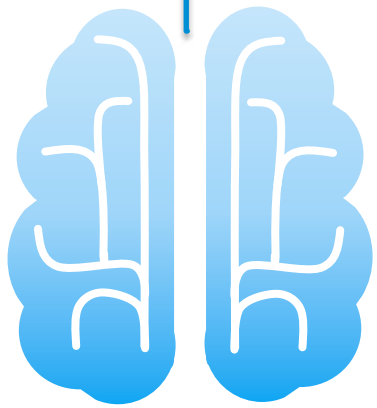
This presentation contains forward-looking statements made within the meaning of the Private Securities Litigation Reform Act of 1995 by Anavex® Life Sciences Corp. and its representatives. These statements can be identified by introductory words such as “expects,” “plans,” “intends,” “believes,” “will,” “estimates,” “forecasts,” “projects,” or words of similar meaning, and by the fact that they do not relate strictly to historical or current facts. Forward-looking statements frequently are used in discussing potential product applications, potential collaborations, product development activities, clinical studies, regulatory submissions and approvals, and similar operating matters. Many factors may cause actual results to differ from forward-looking statements, including inaccurate assumptions and a broad variety of risks and uncertainties, some of which are known and others of which are not. Known risks and uncertainties include those identified from time to time in reports filed by Anavex Life Sciences Corp. wit the Securities and Exchange Commission, which should be considered together with any forward-looking statement. No forward-looking statement is a guarantee of future results or events, and one should avoid placing undue reliance on such statements. Anavex Life Sciences Corp. undertakes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise. Anavex Life Sciences Corp. cannot be sure when or if it will be permitted by regulatory agencies to undertake clinical trials or to commence any particular phase of clinical trials. Because of this, statements regarding the expected timing of clinical trials cannot be regarded as actual predictions of when Anavex Life Sciences Corp. will obtain regulatory approval for any “phase” of clinical trials. We also cannot be sure of the clinical outcome for efficacy or safety of our compounds. Potential investors should refer to the risk factors in our reports filed on Edgar.

New Therapeutic Strategy to Treat CNS Disorders

- Anavex utilizes **genomic biomarkers** in **precision medicine** to treat severe and devastating neurological disorders

- Anavex is focusing on **rare diseases** with no available therapy (Rett syndrome) and **high risk CNS** patient populations (Alzheimer's disease, Parkinson's disease)

Anavex at a Glance



APPROACH

Applying precision medicine to CNS disorders
Patient selection based on genomic screening and biomarkers

MECHANISM

SIGMAR1 restoring cellular homeostasis

FOCUS

Finding effective treatments for neurodevelopmental and neurodegenerative diseases

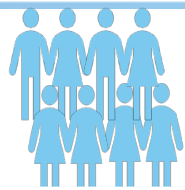
LARGE MARKETS

Addressing unmet needs such as global dementia, other neurodegenerative diseases as well as catastrophic orphan genetically caused diseases

Overview ANAVEX®2-73 Ongoing Precision Medicine Clinical Trials

PHASE 2 PARKINSON'S DISEASE DEMENTIA

14 WEEK STUDY

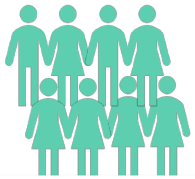


120

ANAVEX®2-73-PDD-001 STUDY (NCT03774459)*

PHASE 2b/3 ALZHEIMER'S DISEASE

48 WEEK STUDY



450

ANAVEX®2-73-AD-004 STUDY (NCT03790709)*

PHASE 2 RETT SYNDROME**

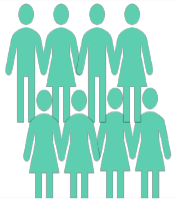
7 WEEK STUDY

15

ANAVEX®2-73-RS-001 STUDY (NCT03758924)*

PHASE 2a ALZHEIMER'S DISEASE

208 WEEK STUDY



32

ANAVEX®2-73-AD-002/3 STUDY (NCT02244541/NCT02756858)*

- Sufficient cash including non-dilutive grant and governmental third party support to fund objectives for the next 2 years

**ClinicalTrials.gov Identifier; **FDA granted ANAVEX®2-73 Orphan Drug Designation (ODD) for Rett syndrome*

Catalysts to Drive Value

The company is well positioned to achieve key clinical readouts

- [x] Phase 2a – Reported 148-week data at CTAD 2018 scientific meeting
- [x] Phase 2b/3 clinical trial in Alzheimer's disease – ongoing
- [x] Phase 2 clinical trial in Parkinson's disease dementia (PDD) – ongoing
- [ ] Initiate Phase 2 clinical trial in Rett syndrome (RTT)
- [ ] Topline data Phase 2 Parkinson's disease dementia (PDD)
- [ ] Topline data Phase 2 Rett syndrome (RTT)
- [ ] Clinical data publications in 2019
- [ ] New indications and licensing opportunities

SIGMAR1 Activation has been Shown to Modulate Multiple Aspects of Neurodegenerative Processes

Sigma-1 receptor agonists have been shown to restore neuronal functions in neurodegenerative processes

Contents lists available at ScienceDirect

Journal of Pharmacological Sciences

journal homepage: www.elsevier.com/locate/jphs

Critical review

Role of sigma-1 receptors in neurodegenerative diseases

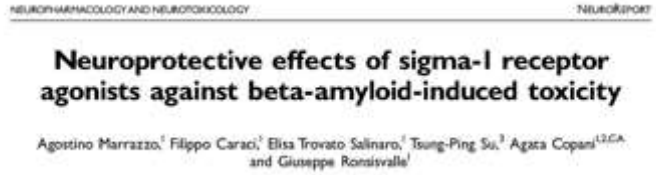
Linda Nguyen [a,b,c], Brandon P. Lucke-Wold [d], Shona A. Mookerjee [e], John Z. Cavendish [d], Matthew J. Robson [f], Anna L. Scandinaro [a,b,c], Rae R. Matsumoto [a,b,c,e,*]

ANAVEX®2-73 alleviates Tau pathology in neurodegenerative disease models

Blockade of Tau Hyperphosphorylation and $A\beta_{1-42}$ Generation by the Aminotetrahydrofuran Derivative ANAVEX2-73, a Mixed Muscarinic and σ_1 Receptor Agonist, in a Nontransgenic Mouse Model of Alzheimer's Disease

Valentine Lahmy[1,2,3,4], Johann Meunier[4], Susanna Malmström[4], Gaelle Naert[1,2,3], Laurent Givalois[1,2,3], Seung Hyun Kim[5], Vanessa Villard[4], Alexandre Vamvakides[6] and Tangui Maurice[*,1,2,3]

Sigma-1 receptor agonists have a neuroprotective effect in neurodegenerative disease models



NEUROPHARMACOLOGY AND NEUROTOXICOLOGY NEUROREPORT

Neuroprotective effects of sigma-1 receptor agonists against beta-amyloid-induced toxicity

Agostino Marrazzo,[1] Filippo Caraci,[1] Elisa Trovato Salinaro,[1] Tsung-Ping Su,[2] Agata Copani[1,2,CA] and Giuseppe Ronsisvalle[1]

Autophagy as Key Protein Clearance Process: New Pharmacological Target in Neurodegeneration – achieved through SIGMAR1 Activation

cells

MDPI

Article

Sigma-1 Receptor Activation Induces Autophagy and Increases Proteostasis Capacity In Vitro and In Vivo

Maximilian G. Christ, Heike Huesmann, Heike Nagel, Andreas Kern and Christian Behl *

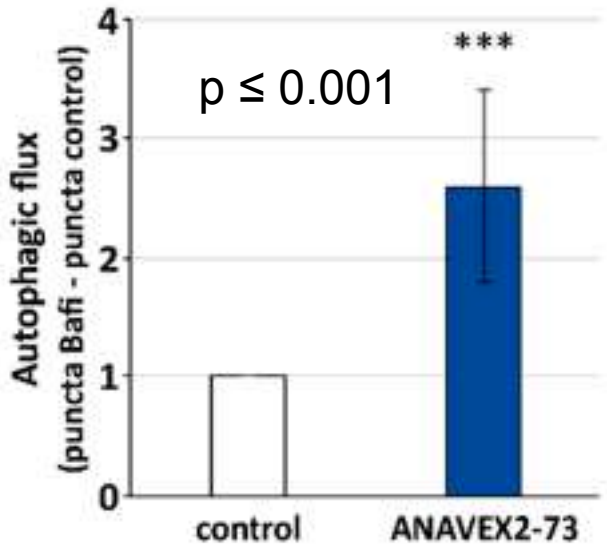
Institute of Pathobiochemistry, University Medical Center of the Johannes Gutenberg University, Duesbergweg 6, 55128 Mainz, Germany; maxchris@uni-mainz.de (M.G.C.); duerk@uni-mainz.de (H.H.); nagelh@uni-mainz.de (H.N.); akern@uni-mainz.de (A.K.)

* Correspondence: cbehl@uni-mainz.de; Tel.: +49-6131-392-5890

Received: 29 January 2019; Accepted: 27 February 2019; Published: 2 March 2019

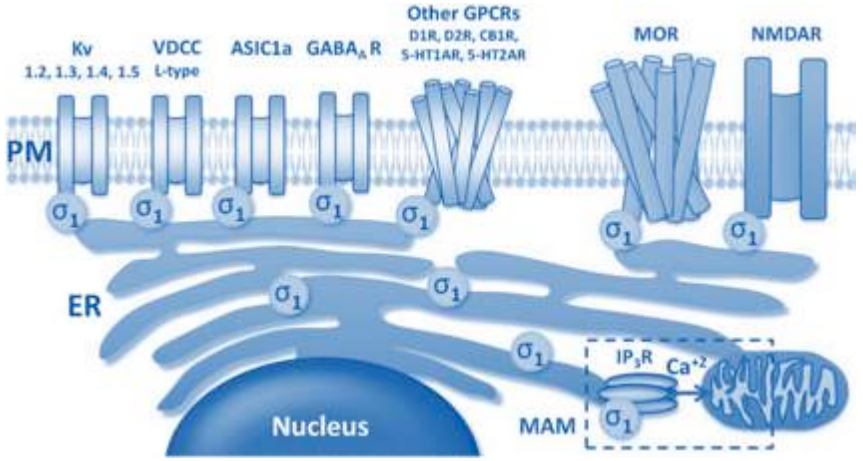
check for updates

Sigma-1 receptor activation by ANAVEX2-73 enhances autophagy in *C. elegans*



Genetic SIGMAR1 Variations Linked to Neurological Disorders

The SIGMAR1 receptor is an integral membrane protein involved in cellular homeostasis which targets restoration of neuroplasticity and cellular stress response



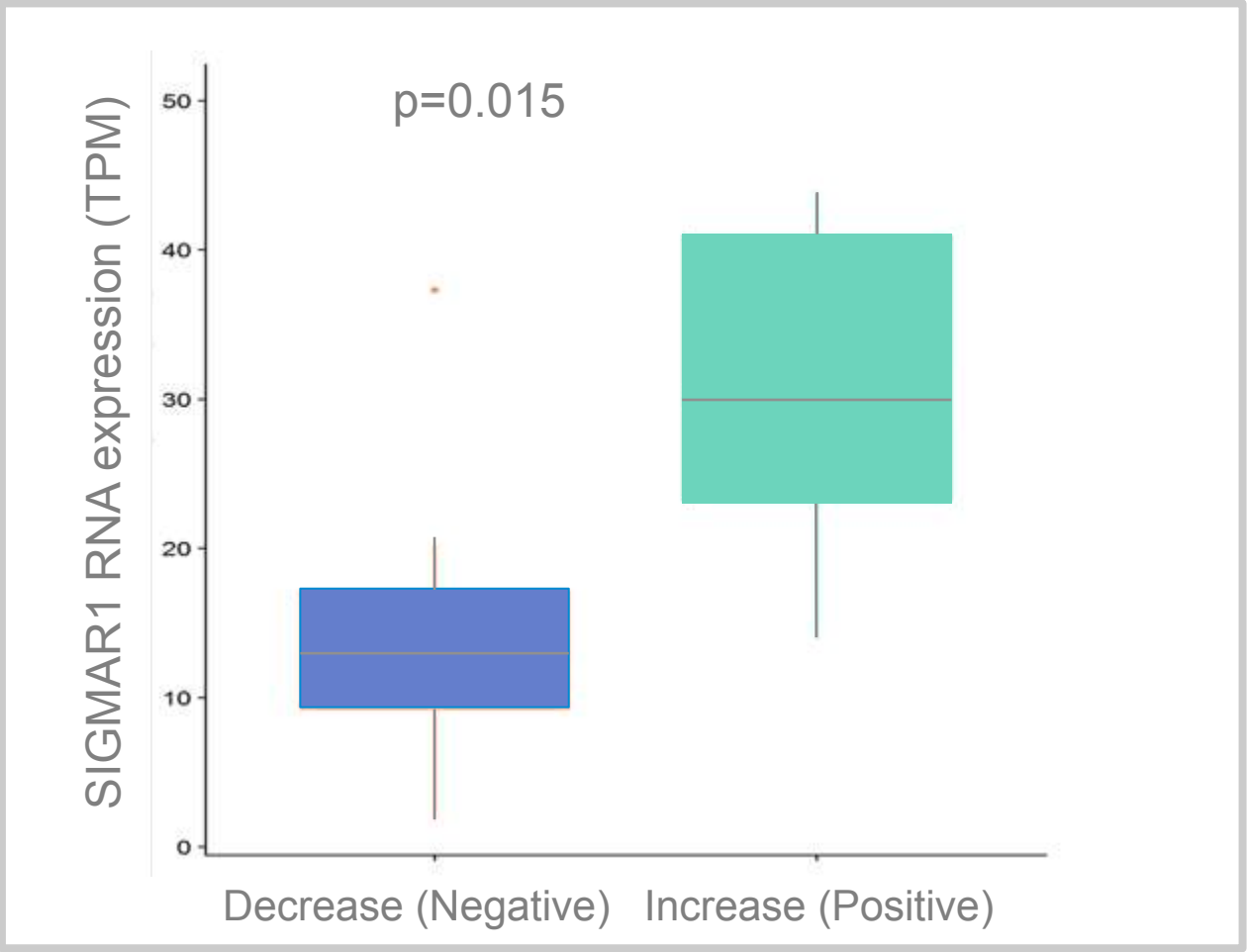
Impaired SIGMAR1 function leads dysfunction in ER-mitochondria crosstalk, calcium homeostasis impairment, ER stress activation

- SIGMAR1 null mice display muscle weakness, axonal degeneration and motor neuron loss[1]
- Mutations in SIGMAR1 have been identified in
  - frontotemporal lobar degeneration co-occurring with ALS (FTLD-ALS)[2]
  - juvenile ALS[3]
  - the rare neuromuscular disorder distal hereditary motor neuropathy (dHMN) [4, 5, 6, 7]
  - In Alzheimer's disease, variants of the SIGMAR1 have been shown to be a risk factor[8]

1) Bernard-Marissal N et al 2015. Brain. Apr;138(Pt 4):875-90L.; 2) Luty AA et al 2010. Ann Neurol. Nov;68(5):639-49; 3)Al-Chalabi A et al 2011. Ann Neurol. Dec;70(6):913-9; 4) Li X et al 2015. Neurology. Jun 16;84(24): 2430- 7.; 5) Gregianin E et al 2016. Hum Mol Genet. Sep 1;25(17):3741-3753.; 6) Nandhagopal R et al 2018. Eur J Neurol. Feb;25(2):395-403.; 7) Almendra L et al 2018. Acta Myol. May 1;37(1):2-4.; 8) Feher A et al 2012. Neurosci Lett; 517: 136-139.

Patients Improvement Correlates with ANAVEX®2-73 and SIGMAR1 RNA Expression

Activities of Daily Living (ADCS-ADL)* Slope from Baseline to Week 57



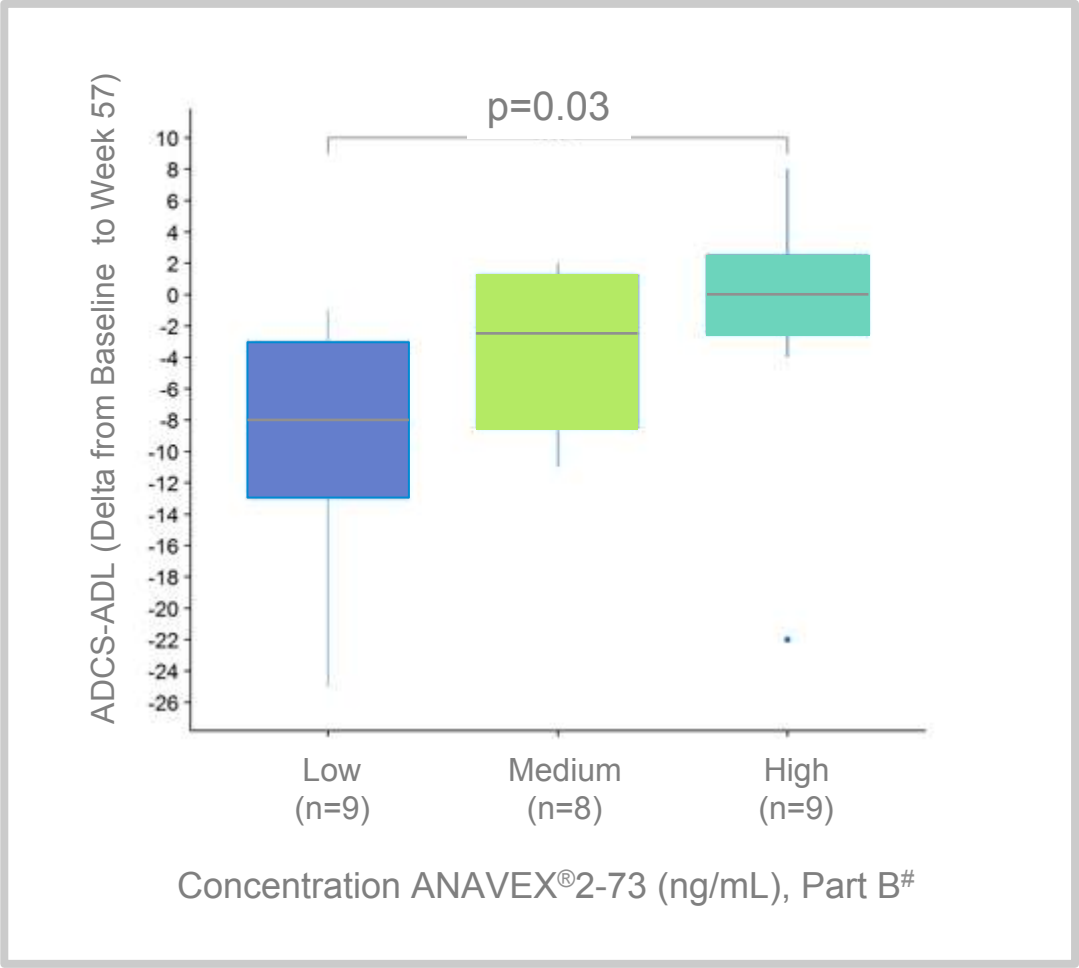
ANAVEX®2-73 positive response in functional (ADCS-ADL) outcomes in Alzheimer's disease patients corelate with SIGMAR1 mRNA levels

p = p-value of Mann–Whitney U test
All n=20 patients in study at week 57 with available genomic data

*Source: H Hampel et al., AAIC 2018; *Alzheimer's Disease Cooperative Study Activities of Daily Living 23-item scale (ADCS-ADL)*

Significant Relationship between ANAVEX®2-73 Concentration and Patients Response

Activities of Daily Living (ADCS-ADL)*

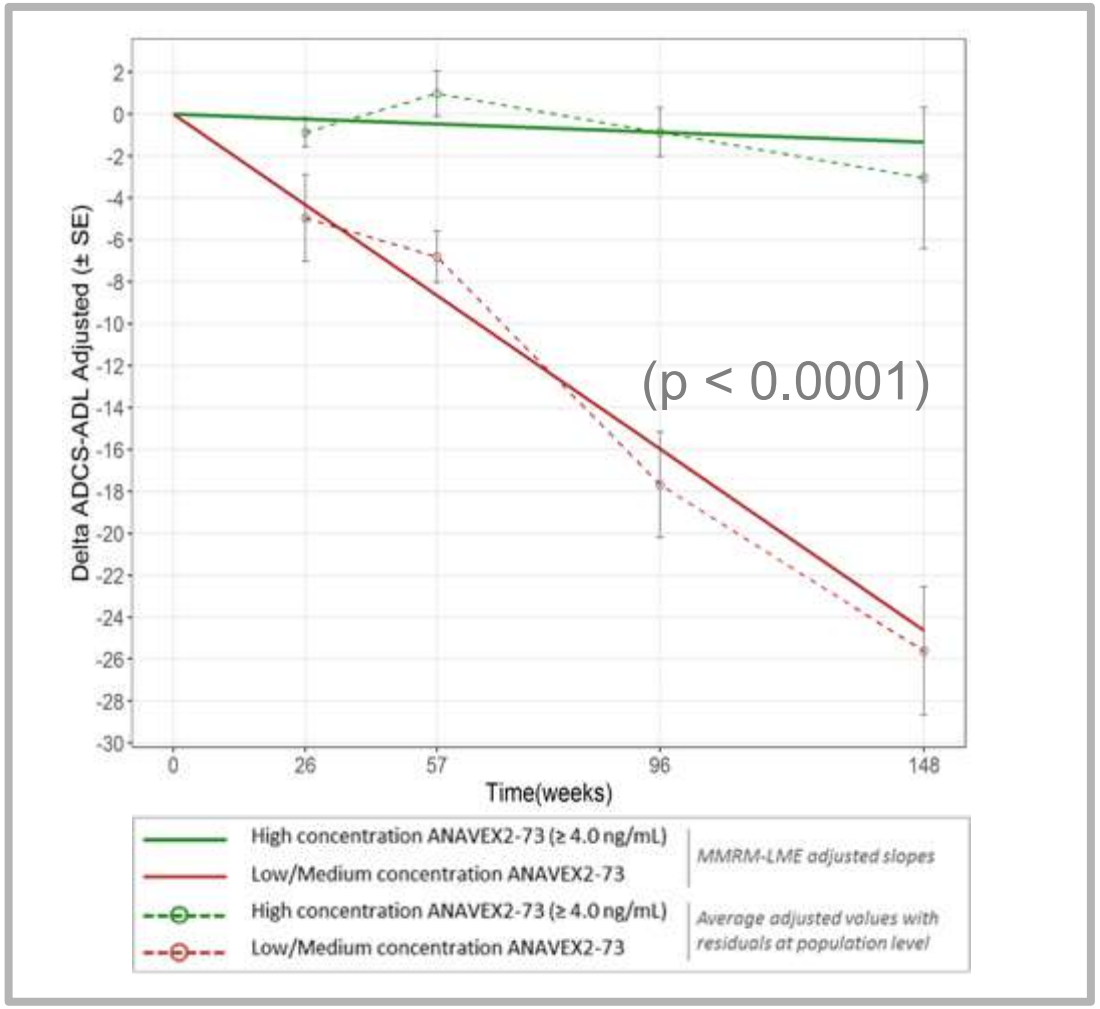


- High Concentration of ANAVEX®2-73
  => High Delta ADCS-ADL (improved response)
- # Plasma concentration of ANAVEX®2-73 is correlated with the administered dose
  - All n=26 patients in study at week 57
  - p = p-value of Mann–Whitney U test

*Source: H Hampel et al., AAIC 2018; *Alzheimer's Disease Cooperative Study Activities of Daily Living 23-item scale (ADCS-ADL)*

Patients Treated with Higher ANAVEX®2-73 Concentration Maintain ADCS-ADL* Performance vs Lower Concentration Cohort

High Concentration cohort shows 88 % difference to low concentration cohort



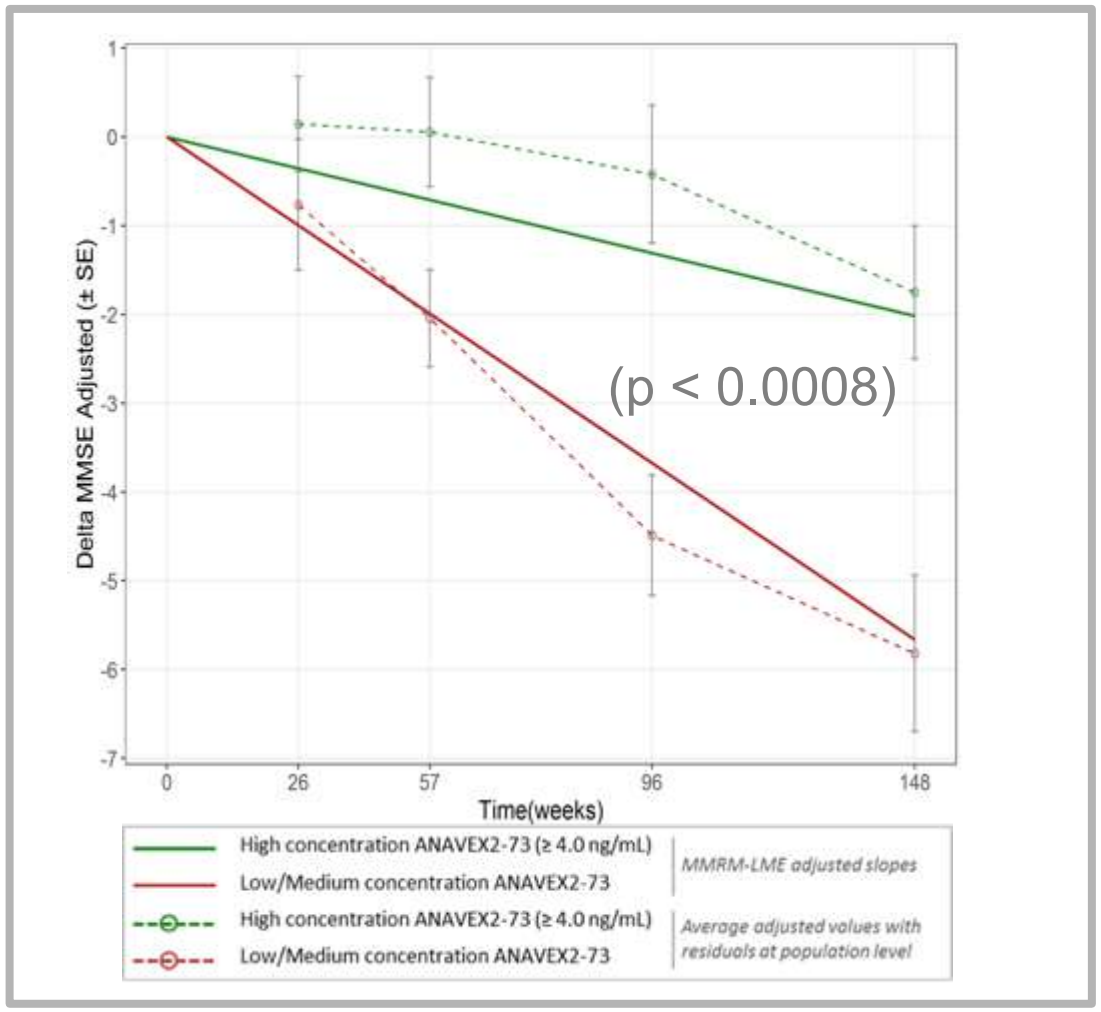
- High plasma concentration of ANAVEX®2-73 [>4.0 ng/ml] is correlated with the clinically administered dose
- In addition to concentration, the significant covariates identified in MMRM-LME model are:
  - **SIGMAR1** (p<0.0080),
  - **COMT** (p<0.0014)

The covariates that are included in the MMRM-LME model for ADCS-ADL change are: time as continuous, AV2-73 concentration group (High and Low/Med), sex, APOE ε4 status, age (Low, High), baseline MMSE score, ongoing Donepezil treatment, SIGMAR1-Q2P, COMT-L146FS variants, interactions between time and concentration group, time and APOE ε4 status, time and SIGMAR1, time and COMT, concentration group and APOE ε4 status, and concentration group and SIGMAR1 variant.

Source: M Afshar et al., CTAD 2018 ** Alzheimer's Disease Cooperative Study Group - Activities of Daily Living Inventory (ADCS-ADL)*

Patients Treated with Higher ANAVEX®2-73 Concentration Show Higher MMSE* Performance Compared to Lower Concentration

High Concentration cohort shows 64 % less decline than low concentration cohort



- High plasma concentration of ANAVEX®2-73 [>4.0 ng/ml] is correlated with the clinically administered dose

Covariates included in the MMRM-LME model for MMSE change are: time as continuous, AV2-73 concentration group (High and Low/Med), APOE ε4 status, age (Low, High), baseline MMSE score, SIGMAR1-Q2P variant, interactions between time and concentration group, time and APOE ε4 status, time and SIGMAR1, and concentration group and SIGMAR1 variant.

Source: M Afshar et al., CTAD 2018

** Mini Mental State Examination (MMSE)*

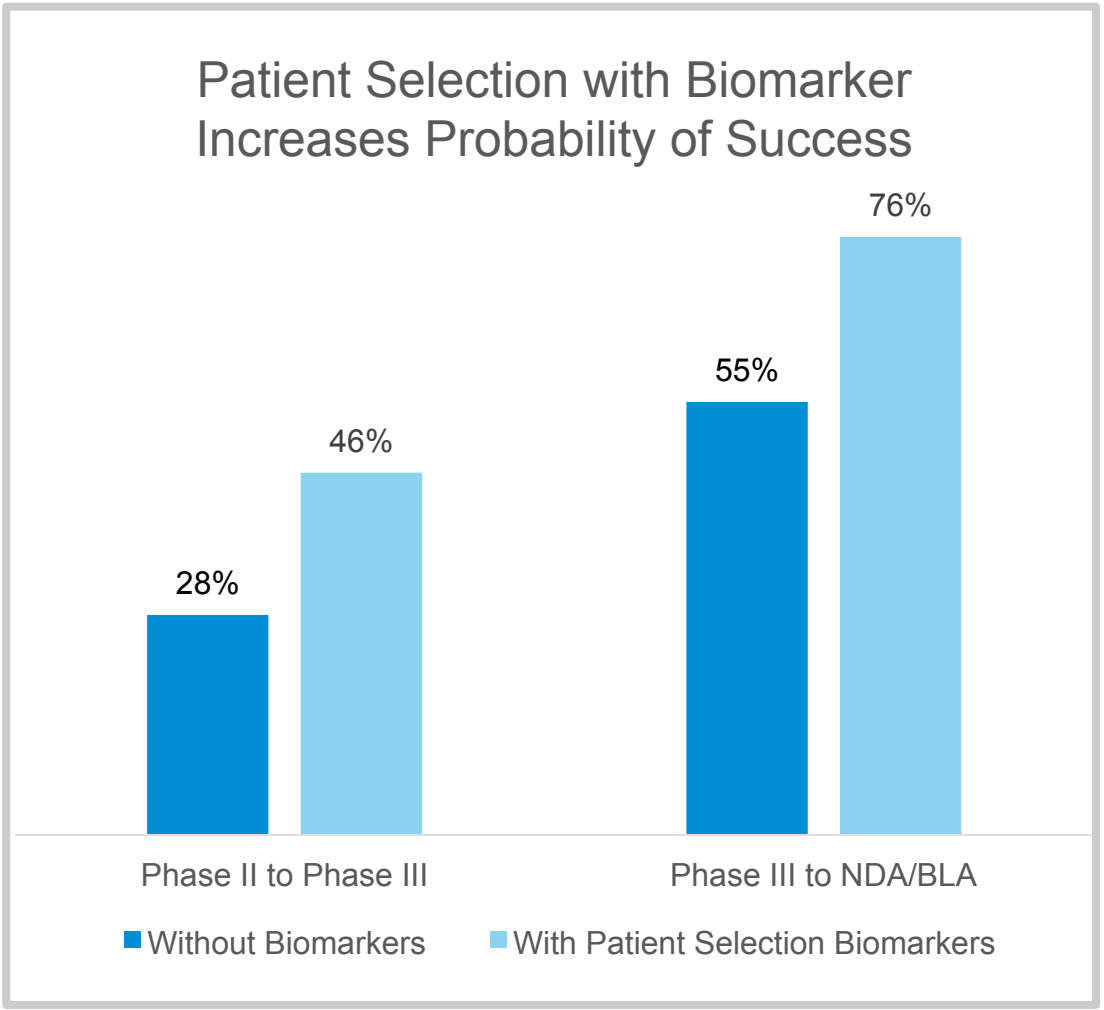
Precision Medicine

Precision Medicine

PHARMACOLOGY + GENOMIC = PHARMACOGENOMICS

The ideal pharmacogenomics test will be able to determine:

- Potential for a medication to be effective – for this person
- The best dose of a medication – for this person
- Avoid risk of serious side effects – for this person



Thomas DW et al. Clinical Development Success Rates 2006-2015. BIO Industry Analysis

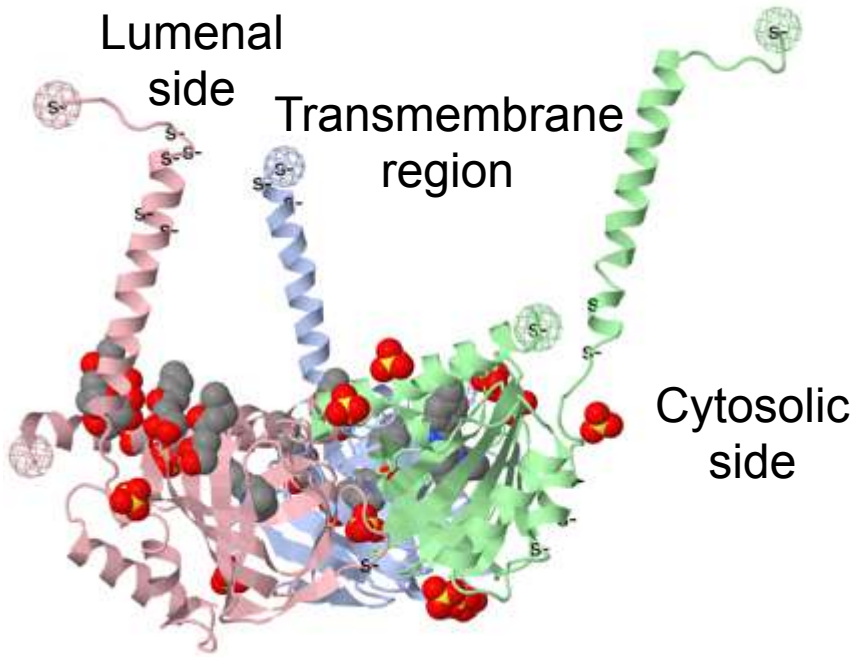
Identification of Gene “Signature” from ANAVEX®2-73-Treated Patients

- Genomic signature (WT SIGMAR1 gene) strongest responders to ANAVEX®2-73
- This genomic “biomarker” is **drug specific**, not indication specific, so it applies to all indications treated with ANAVEX®2-73

SIGMAR1 Gene Plays a Role in Protein Trafficking

SIGMAR1 WT structure

rs1800866 variant impairs protein trafficking

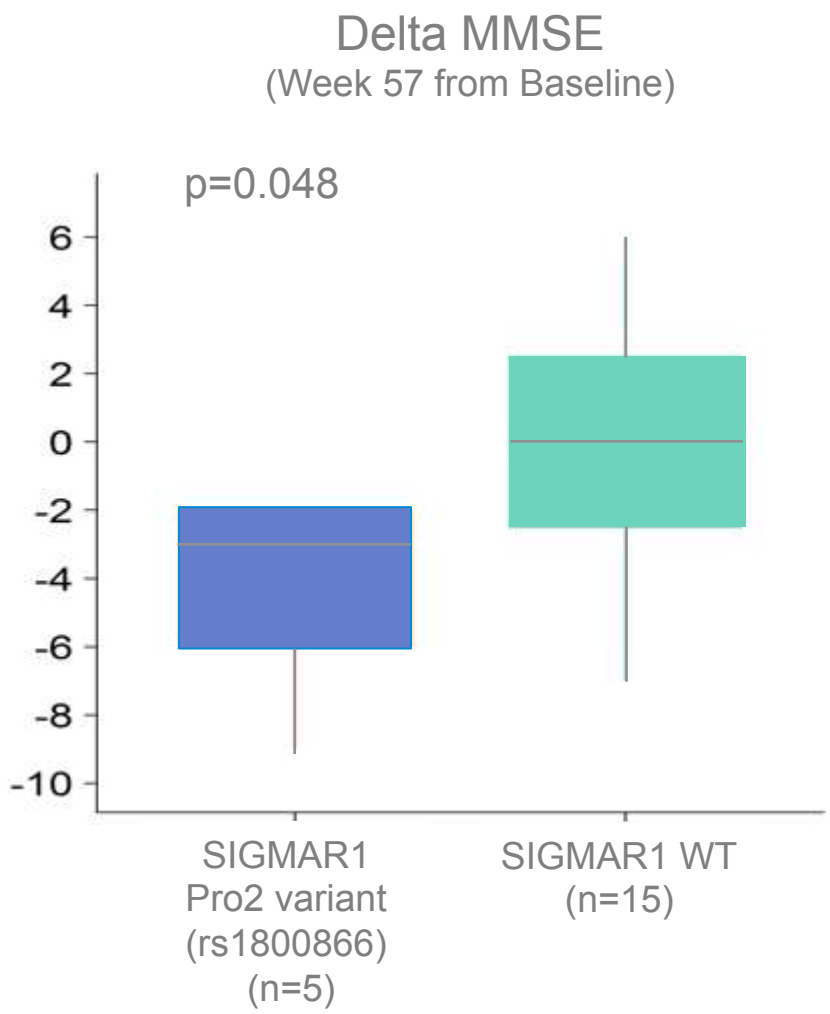


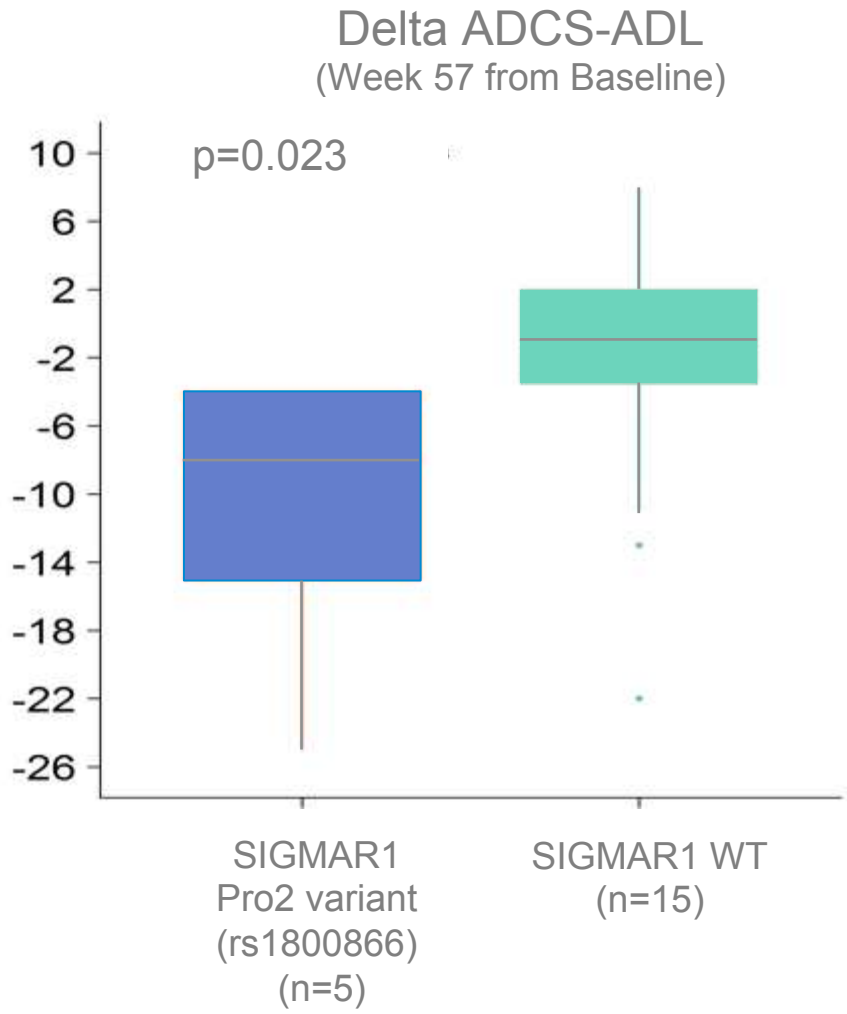
- Majority of the population (~80%) carries SIGMAR1 WT
- Majority of patients (~80%) are expected to benefit from SIGMAR1 activation with ANAVEX®2-73
- rs1800866 variant found in the remaining (~20%) of the population can cause structural change, leading to impaired protein trafficking

Adapted from: Laurini E., Marson D., Fermeglia M., Pricl S. (2017) 3D Homology Model of Sigma1 Receptor. Evolution of the Concept of Sigma Receptors. Handbook of Experimental Pharmacology, vol 244. Springer, Cham
Schmidt H.R. et al, Nature. 2016 Apr 28; 532(7600): 527–530

SIGMAR1 WT Gene Associated with Improved Response …

… and validated at **148** weeks





Source: H Hampel et al., AAIC 2018

p = p-value of Mann–Whitney U test

All n=20 patients in study at week 57 with available genomic data

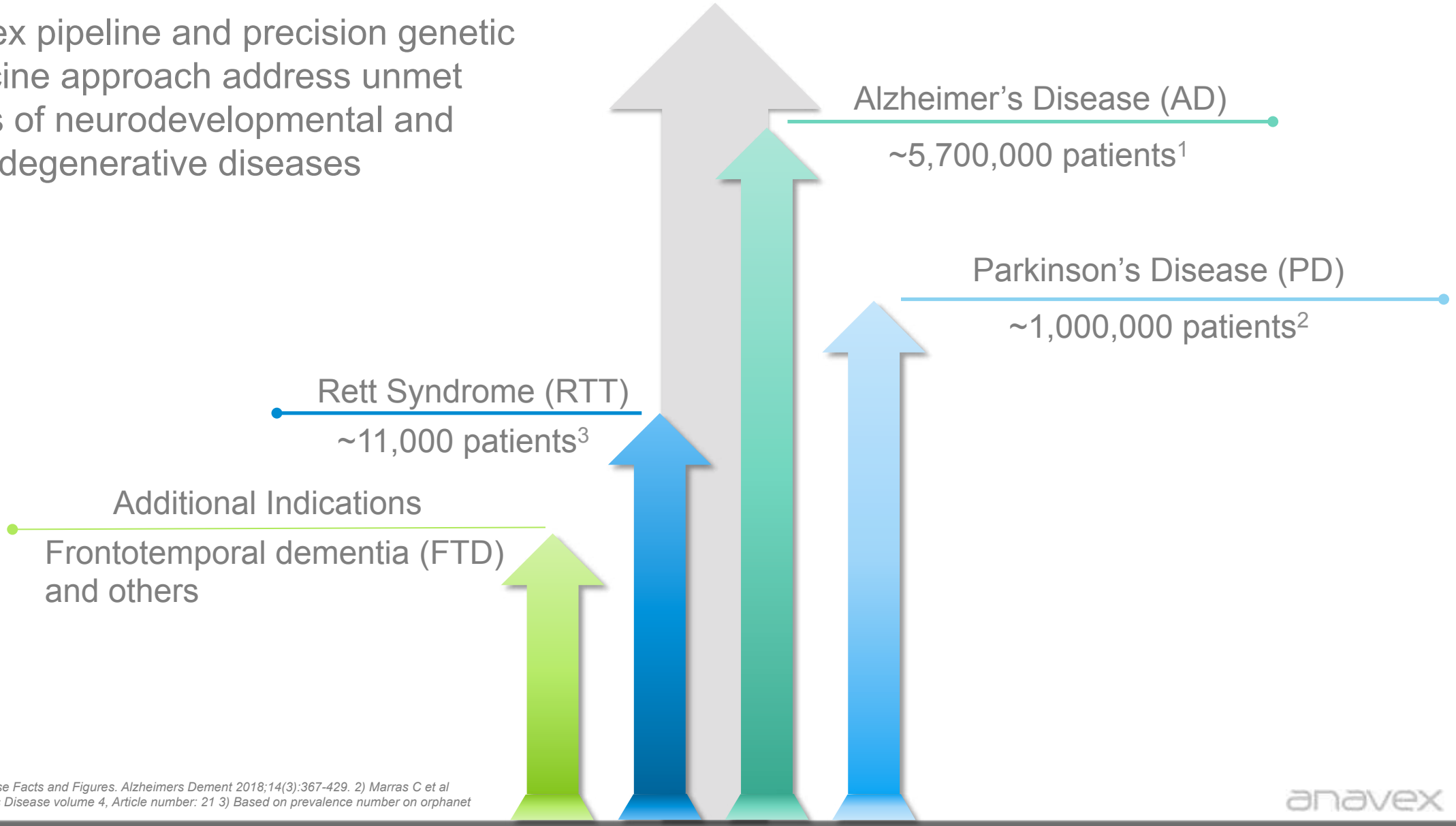
anavex

Clinical Studies:

- Parkinson’s Disease Dementia (PDD)
- Alzheimer’s Disease (AD)
- Rett Syndrome (RTT)

Pipeline Addresses both Rare and Large Indications

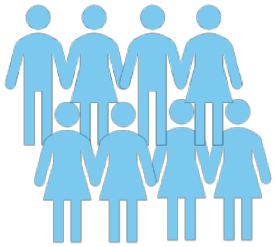
Anavex pipeline and precision genetic medicine approach address unmet needs of neurodevelopmental and neurodegenerative diseases



1) Alzheimer's Disease Facts and Figures. Alzheimers Dement 2018;14(3):367-429. 2) Marras C et al 2018. npj Parkinson's Disease volume 4, Article number: 21 3) Based on prevalence number on orphanet

ANAVEX®2-73 Phase 2 Parkinson's Disease Dementia Study

N=120



14 WEEK STUDY

PDD patient population

- Diagnosis of probable Parkinson's disease dementia (PDD)
- Diagnosis of idiopathic Parkinson's disease
- Patients aged ≥ 50 years
- MoCA score 13-23
- DNA and RNA sequencing

Randomization 1:1:1

- ANAVEX®2-73 **High dose#**
- ANAVEX®2-73 **Medium dose#**
- Placebo

Primary Endpoints
- CDR Continuity of Attention
- Safety and tolerability of ANAVEX®2-73

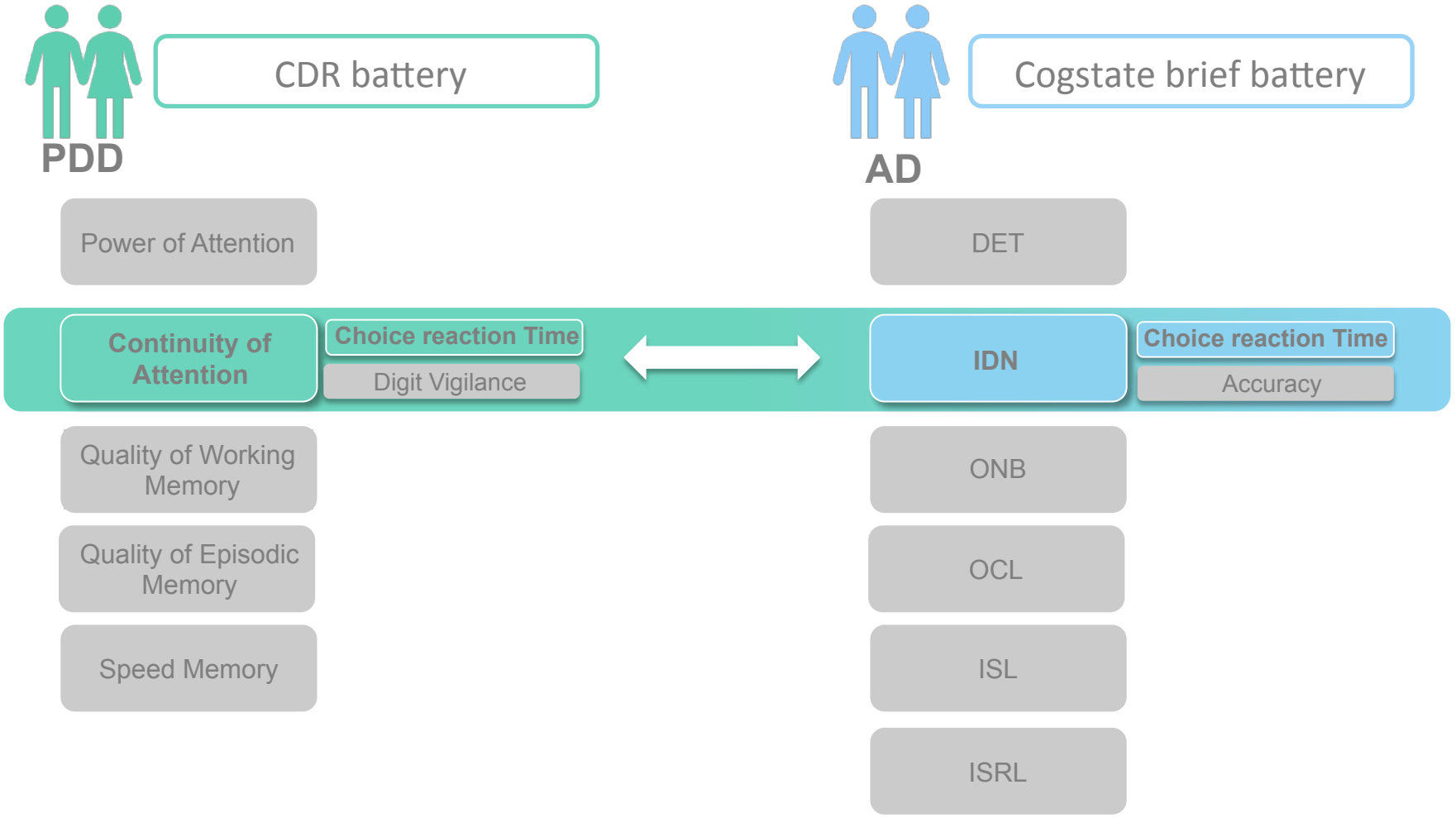
Key Secondary Endpoints
- MDS-UPDRS
- Sleep function
- Actigraphy
- MoCA
- Other CDR battery measures

Pre-specified Endpoints
- Genetic variants SIGMAR1 (rs1800866), COMT (rs113895332/ rs61143203) with influence on treatment effect

 # Restricted to maintain complete blinding

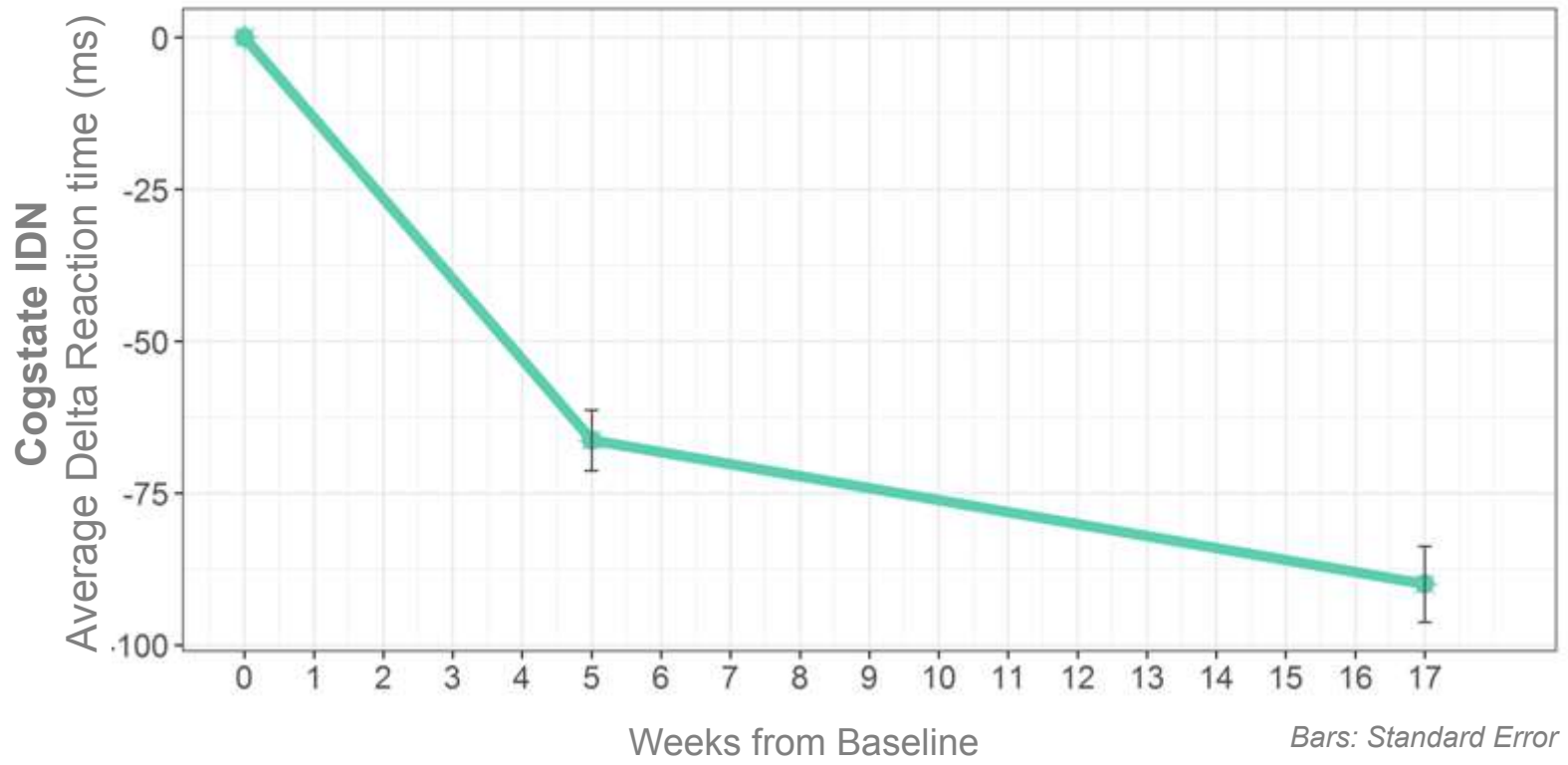
Primary Endpoint 'CDR Continuity of Attention' of PDD ANAVEX®2-73 Ph2 Study: Confirmed Beneficial Effect in Previous Ph2a AD Study

Identification (IDN) in Cogstate battery assessed in ANAVEX®2-73 Ph2a AD Study *comparable* to CDR Continuity of Attention (choice reaction time paradigm)



ANAVEX®2-73 Ph2 AD Study - Cogstate IDN Improves within Weeks

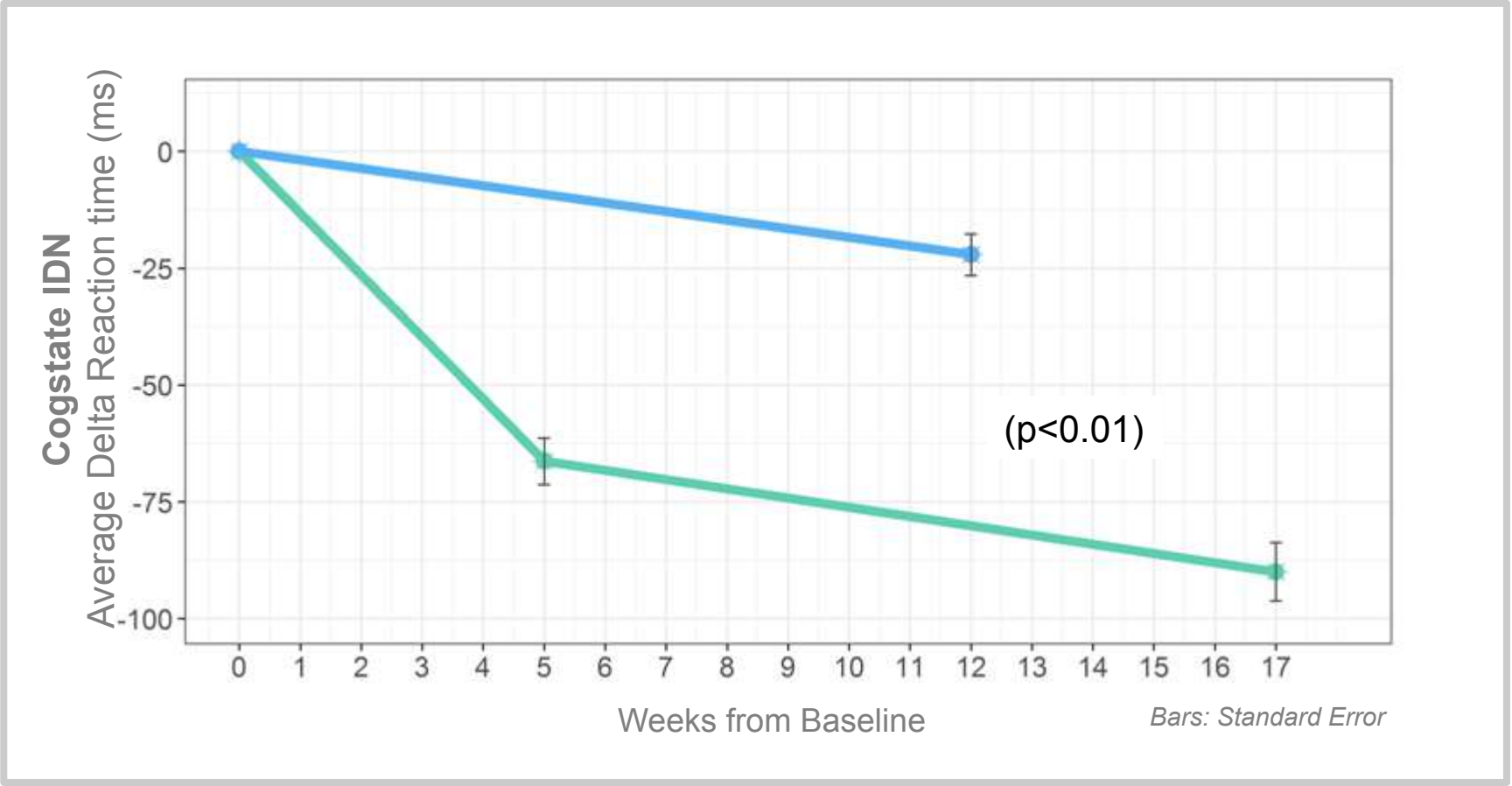
Cogstate IDN from Baseline



ANAVEX®2-73

Cogstate IDN: ANAVEX®2-73 Ph2a AD Patients Improve within Weeks vs Standard of Care AD Patients

AIBL-ROCS-AD* cohort as standard of care comparator



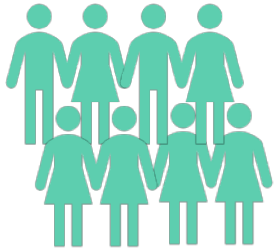
Baseline data:	SoC (AIBL-ROCS-AD)	ANAVEX® 2-73
Participants (n)	35	32
MMSE (mean)	21.2	21.0

ANAVEX®2-73
AIBL-ROCS-AD

** Australian Imaging Biomarkers and Lifestyle (AIBL-ROCS-AD) study evaluating mild-to-moderate Alzheimer's disease patients on SoC (Standard of Care) acetylcholinesterase medications and/or memantine with Cogstate battery; Lim YY et al (2013) Arch Clin Neuropsychol. Jun;28(4):320-30 and Cogstate unpublished data*

ANAVEX®2-73 Phase 2b/3 Alzheimer's Disease Study

N=450



48 WEEK STUDY

Early AD patient population

- Confirmed amyloid pathophysiology (CSF/amyloid PET)
- Patients aged 60 to 85 years
- MMSE score 20-28
- DNA and RNA sequencing

Randomization 1:1:1

- ANAVEX®2-73 **High dose#**
- ANAVEX®2-73 **Medium dose#**
- Placebo

Primary Endpoints
- ADAS-Cog
- ADCS-ADL
- Safety and tolerability of ANAVEX®2-73

Key Secondary Endpoints
- CDR-SB
- Structural and functional MRI
- Biomarkers: $Abeta_{40}$/$Abeta_{42}$, T-tau, P-tau, NFL, YKL-40, neurogranin, BACE1

Pre-specified Endpoints
- Genetic variants SIGMAR1 (rs1800866), COMT (rs113895332/ rs61143203) with influence on treatment effect

 # Restricted to maintain complete blinding

ANAVEX®2-73 Phase 2 Rett Syndrome Study

N=15

7 WEEK STUDY

RTT patient population

- Diagnosis of confirmed RTT
- Patients age >18
- DNA and RNA sequencing

Randomization 3:2

- ANAVEX®2-73 **Active dose***
- Placebo

Primary and Secondary Endpoints

- Safety and tolerability of ANAVEX®2-73
- Behavioral symptoms
- Sleep function
- Seizure activity

Pre-specified Endpoints

- Genetic variants SIGMAR1 (rs1800866), COMT (rs113895332/rs61143203) with influence on treatment effect

 # Restricted to maintain complete blinding

Investment Highlights

- **Pursuing Large Markets By Applying Precision Medicine to Develop Treatments For Neurodegenerative and Neurodevelopmental Diseases With High Unmet Needs** – Novel genomic biomarker-driven programs to treat small patient populations such as Rett syndrome* as well as major public health burdens such as Parkinson's and Alzheimer's disease.
- **Strong IP Position Around Novel Mechanism of Action** – Lead product candidate, ANAVEX®2-73, is an orally available Sigma-1 receptor agonist that has been shown to restore homeostasis. (Composition of matter patent protection to 2033).
- **Compelling Human Data** – ANAVEX®2-73 has undergone a Phase 2a trial in Alzheimer's disease with favorable safety and exploratory efficacy results through 148 weeks.
- **Precision Medicine Improves Chance of Clinical Success** – Testing for genomic biomarkers has demonstrated improved clinical response to ANAVEX®2-73 in Alzheimer's patients carrying wild-type (WT) SIGMAR1 and COMT genes.
- **Value-Creating Catalysts** – Clinical updates from Phase 2 Parkinson's disease dementia study, Phase 2b/3 Alzheimer's disease and Phase 2 Rett syndrome studies anticipated in 2019. Clinical data publications and additional indications to be announced in 2019.
- **Sufficient Cash to Achieve Key Milestones** – Cash on hand and non-dilutive cash from Australian government for Alzheimer's study, and from Rettsyndrome.org for Rett syndrome study.

**FDA granted ANAVEX®2-73 Orphan Drug Designation (ODD) for Rett syndrome*

Anavex Life Sciences Expertise

Management Team

Christopher U. Missling PhD - President & CEO

Walter E Kaufmann, MD - Chief Medical Officer

Stephan Toutain, MS, MBA - SVP of Operations

Emmanuel O Fadiran, RPh, PhD - SVP of Regulatory Affairs

Daniel Klamer, PhD - VP of Business Development & Scientific Strategy

CURIS · IMMUNOGEN, INC. · Aventis

JOHNS HOPKINS SCHOOL of MEDICINE · HARVARD MEDICAL SCHOOL

ALEXION · SAREPTA THERAPEUTICS

FDA · NIH National Institutes of Health · University of Strathclyde Glasgow

Retrophin · NEUROSEARCH

Scientific Advisory Board Members

Jeffrey Cummings, MD — Cleveland Clinic

Harald Hampel, MD, PhD — UPMC Sorbonne Universités

Ottavio Arancio, MD, PhD — Columbia University Medical Center

Andrew Cole, MD — Harvard Medical School

Daniel Weintraub, MD — Perelman School of Medicine, University of Pennsylvania

Paul Aisen, MD — USC University of Southern California

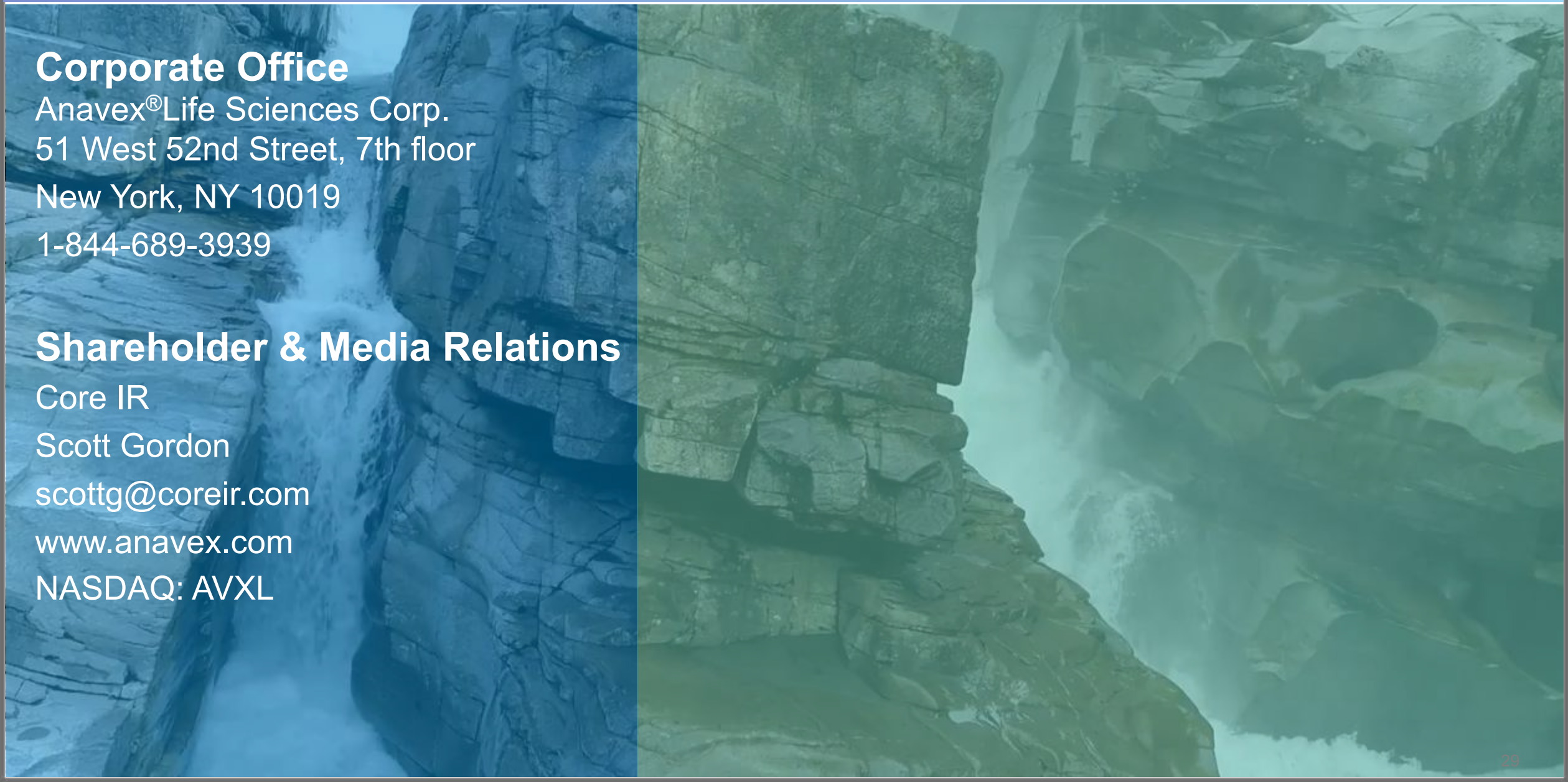
Norman Relkin, MD, PhD — Weill Cornell Medicine

Jacqueline French, MD — NYU

Dag Aarsland, MD, PhD — King's College London

Tangui Maurice, PhD — Université de Montpellier

Contact Us



Corporate Office

Anavex®Life Sciences Corp.
51 West 52nd Street, 7th floor
New York, NY 10019
1-844-689-3939

Shareholder & Media Relations

Core IR
Scott Gordon
scottg@coreir.com
www.anavex.com
NASDAQ: AVXL