

Amicus Establishes Gene Therapy Pipeline for Lysosomal Storage Disorders (LSDs)



**Conference Call and Webcast September 20, 2018** 

#### Safe Harbor

This presentation contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 relating to the acquisition of Celenex, preclinical and clinical development of our acquired product candidates, the timing and reporting of results from these preclinical studies and clinical trials, and financing plans for the Company. The inclusion of forward-looking statements should not be regarded as a representation by us that any of our plans will be achieved. Any or all of the forward-looking statements in this presentation may turn out to be wrong and can be affected by inaccurate assumptions we might make or by known or unknown risks and uncertainties. For example, the benefits of this acquisition may never be realized, the potential that results of clinical or preclinical studies indicate that the product candidates are unsafe or ineffective; the potential that it may be difficult to enroll patients in our clinical trials; the potential that regulatory authorities, including the FDA, EMA, and PMDA, may not grant or may delay approval for our product candidates; the potential that preclinical and clinical studies could be delayed because we identify serious side effects or other safety issues; the potential that we may not be able to manufacture or supply sufficient clinical or commercial products; the potential that we will need additional funding to complete all of our studies and manufacturing and the potential that certain individuals may not continue to support the product candidates as advisors. Further, the results of earlier preclinical studies and/or clinical trials may not be predictive of future results. In addition, all forward-looking statements are subject to other risks detailed in our Annual Report on Form 10-K for the year ended December 31, 2017 as well as our Quarterly Report on Form 10-Q for the guarter ended June 30, 2018 filed August 7, 2018 with the Securities and Exchange Commission. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. All forward-looking statements are qualified in their entirety by this cautionary statement, and we undertake no obligation to revise or update this presentation to reflect events or circumstances after the date hereof.



#### Amicus Establishes Gene Therapy Portfolio

License Through Nationwide Children's Hospital Combines Successful Amicus Development and Commercial Track Record in LSDs with Ten AAV Gene Therapy Programs for Rare Neurologic LSDs

**Ground Breaking, Clinically Validated Science** 

**Ten Gene Therapy Programs** 

**Expertise and Relationships in Gene Therapy** 

**Compelling Data in Three Lead Programs** 

Leading Gene Therapy Portfolio in Neurologic Lysosomal Storage Disorders "I firmly believe that Amicus is the optimal scientific and clinical partner to move these programs forward and I look forward to actively collaborating with the Amicus team on the development of these important potential therapies."

- Kathrin Meyer, Ph.D. PI at Meyer Lab Nationwide Children's Hospital and Assistant Professor at The Ohio State University



### Pipeline

**Developing Therapies for People Living with Rare Metabolic Diseases with a New Focus on Gene Therapy** 

| PRODUCT/PLATFORM                          | DISCOVERY                          | PRECLINICAL | PHASE 1/2 | PHASE 3 | REGULATORY | COMMERCIAL |
|---|------------------------------------|-------------|-----------|---------|------------|------------|
| FABRY DISEASE                             |                                    |             |           |         |            |            |
| <b>Galafold</b> Pharmacological Chaperone | Galafold™ (Migalastat) monotherapy |             |           |         |            |            |
|   | In Combo with Novel ERT*           |             |           |         |            |            |
| POMPE DISEASE                             |                                    |             |           |         |            |            |
| AT-GAA Novel ERT* + Chaperone             |                                    |             |           |         |            |            |
| OTHER METABOLIC                           |                                    |             |           |         |            |            |
| CDKL5                                     |                                    |             |           |         |            |            |
| GENE THERAPY PROGRAMS                     |                                    |             |           |         |            |            |
| <b>CLN6 Batten Disease</b>                |                                    |             |           |         |            |            |
| <b>CLN3 Batten Disease</b>                |                                    |             |           |         |            |            |
| <b>CLN8 Batten Disease</b>                |                                    |             |           |         |            |            |
| Niemann Pick C                            |                                    |             |           |         |            |            |
| Wolman Disease                            |                                    |             |           |         |            |            |
| Tay Sachs                                 |                                    |             |           |         |            |            |
| Multiple Other CNS LSDs**                 |                                    |             |           |         |            |            |



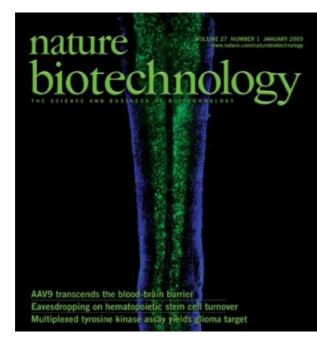
#### Validated Gene Therapy Platform

#### Portfolio is Based on a Validated Gene Therapy Approach Across Multiple CNS Diseases

- Clinically validated AAV gene therapy approach
  - Nationwide Children's Hospital Center for Gene Therapy (NCH)
  - Intrathecal delivery with robust expression throughout the CNS
- Preclinical safety and efficacy studies replicated across multiple diseases at NCH
  - SMA
  - Rett Syndrome
  - ALS
  - CLN6
  - CLN3



scAAV9-CLN6

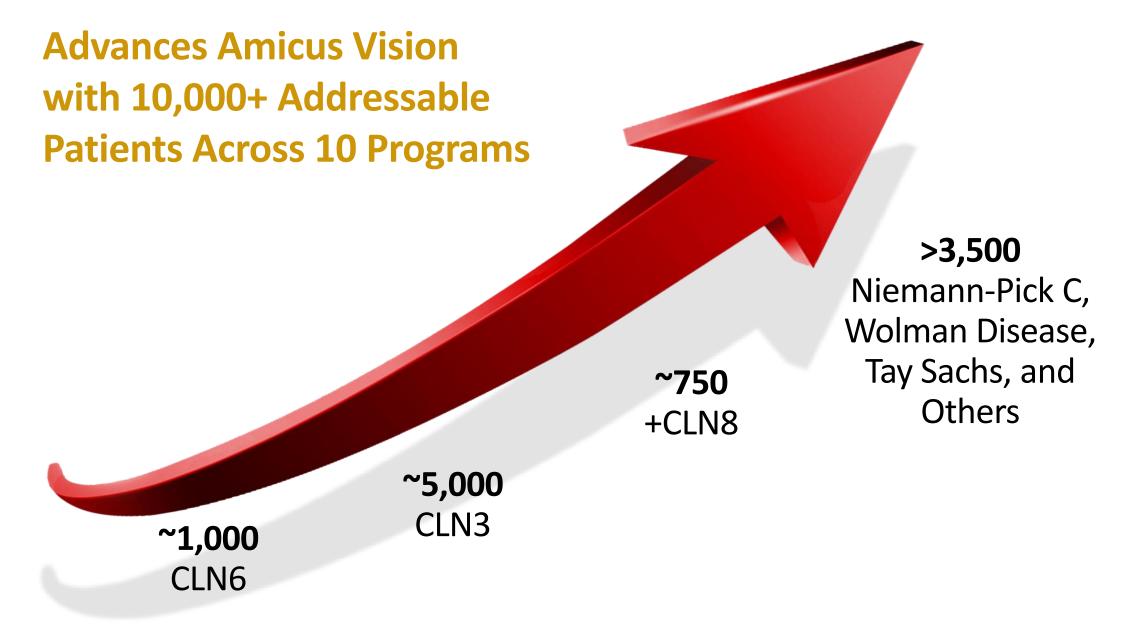


Foust, Kaspar et al, 2009

AAV9-CLN6 Transgene



#### Addressable Patient Populations\*







### **Batten Disease**

"We are business led and science driven"
- Amicus Belief Statement

#### **Batten Disease Overview**

Batten Disease is a Group of Rare, Fatal, Lysosomal Storage Disorders of the Central Nervous

System with High Unmet Need and Limited Treatment Options

#### **Disease Overview**

- A group of disorders known as neuronal ceroid lipofuscinoses (NCLs), collectively referred to as Batten disease
- Mutation in one of 13 different CLN genes leads to lysosomal dysfunction
- Signs and symptoms typically begin in early and late childhood
- Most affected children do not survive into adulthood





### Lead Program Status

The CLN6 and CLN3 Program are Clinical Stage; CLN8 has Definitive Preclinical Efficacy Data in a Mouse Model of Disease

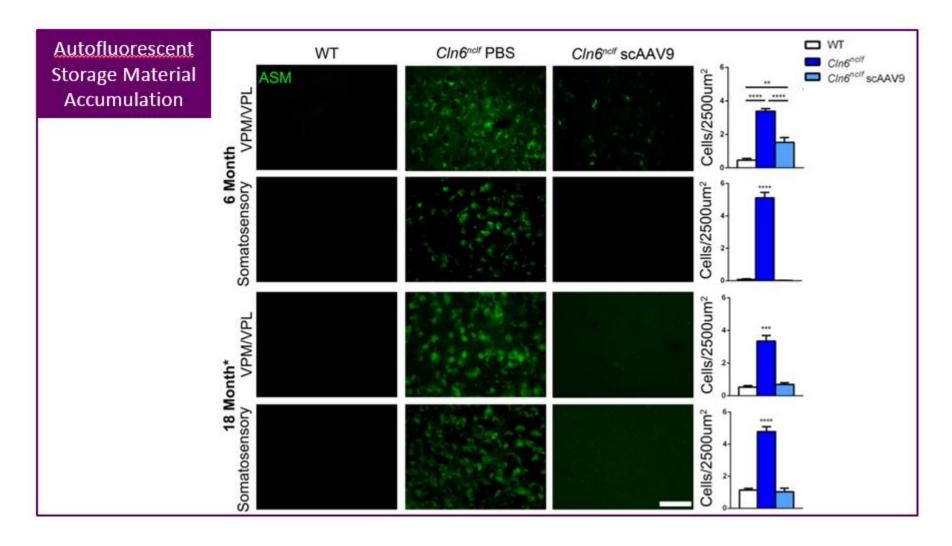
#### PRECLINICAL MOUSE MODEL DATA

|      | Storage<br>Material | Motor &<br>Cognitive<br>Function | Survival | Safety & Brain<br>Expression in<br>NHP | GMP Clinical<br>Supply | IND<br>Active | Preliminary<br>Clinical Data |
|------|---------------------|----------------------------------|----------|--|------------------------|---------------|------------------------------|
| CLN6 |                     |                                  |          |  |                        |               |                              |
| CLN3 |                     |                                  | N/A*     |  |                        |               | Pending                      |
| CLN8 |                     |                                  |          | Pending                                | Pending                | Pending       | Pending                      |



## CLN6: Preclinical Mouse Data Autoflourescent Storage Material

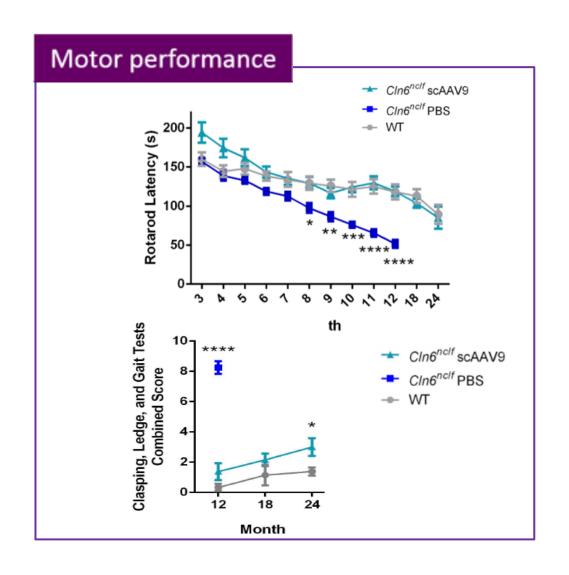
Single AAV9-CLN6 Administration Results in Reduction of Autoflourescent Substrate Material
Throughout the Brain for up to 18 months

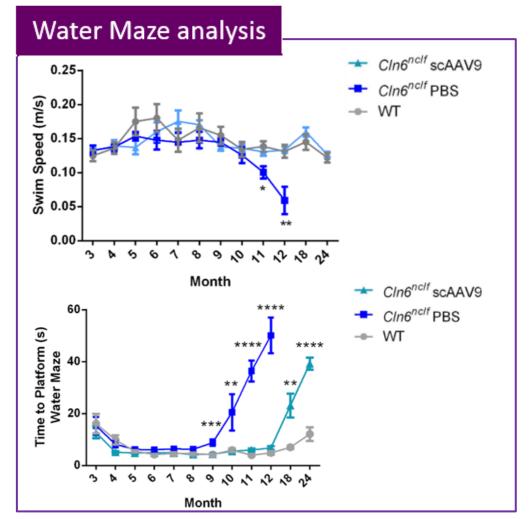




#### CLN6: Preclinical Mouse Data Motor Performance and Cognitive Behavior

#### Single AAV9-CLN6 Administration Improves Motor Performance & Cognitive Behavior Out to Month 24

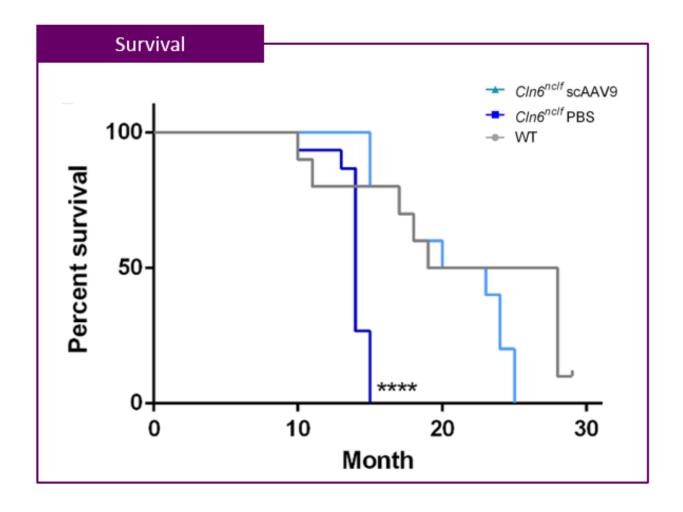






### CLN6: Preclinical Mouse Data Survival

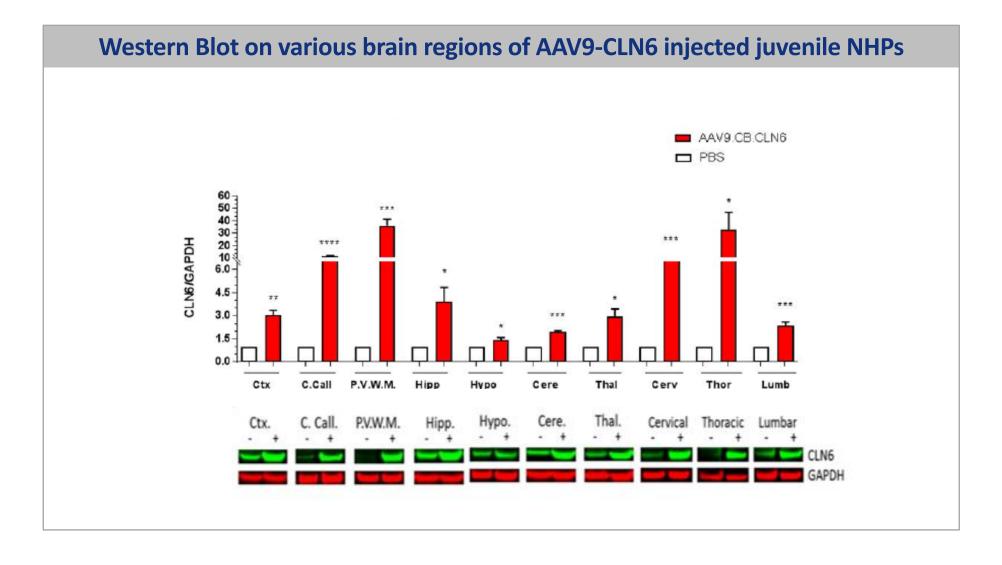
#### Single AAV9-CLN6 Administration Significantly Extends Median Survival





#### CLN6 Expression in NHP Safety Study

**Demonstrated Safety and Meaningful Transduction and CLN6 Expression Demonstrated Throughout the Brain in NHPs** 





#### **CLN6: Clinical Data Summary**

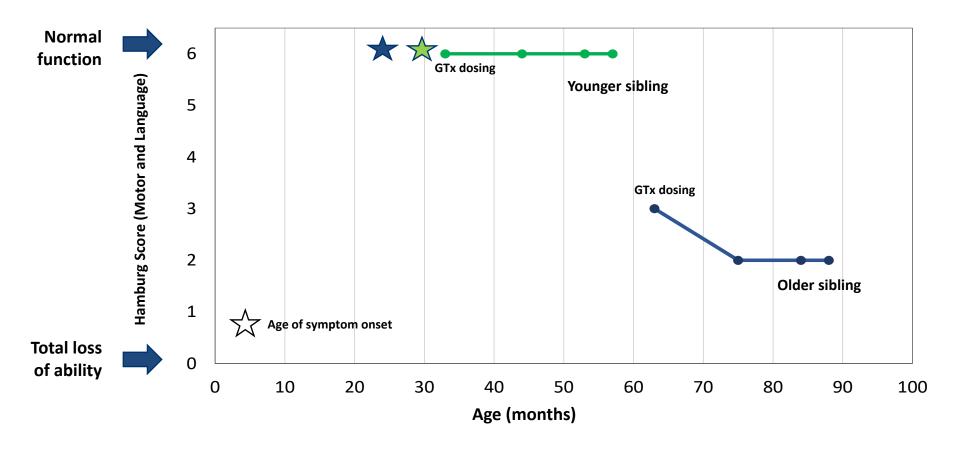
#### **Encouraging Safety and Efficacy Data from an Ongoing Single-arm Phase 1/2 study**

- Single-arm study with all patients receiving gene therapy (n=12)
  - Single intrathecal administration of 1.5 x 10<sup>13</sup> vg scAAV9-CLN6
- Ten patients currently treated; additional patients in screening
  - Average follow-up duration: 12 months (range 1-24 months)
- Generally well-tolerated
  - Majority of adverse events were mild
  - Data Safety Monitoring Board (DSMB) has permitted study to proceed and enroll additional patients
- Encouraging preliminary efficacy data
- Additional data to be presented in 2019



#### Efficacy Data: Matched Sibling Case Report

Encouraging Interim Efficacy Data in First Two Patients Treated with Gene Therapy with Two Years of Follow-up



- Two siblings (same genotype) treated with gene therapy at ages 2.8 and 5.3 years, respectively
- Two years post treatment, Hamburg motor and language scores indicate no disease progression in the younger sibling
- Disease progression in older sibling has shown evidence of stabilization

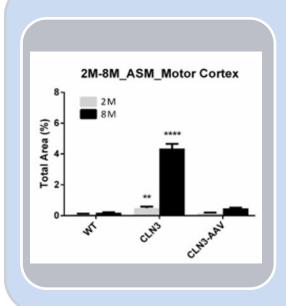


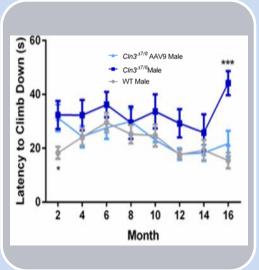


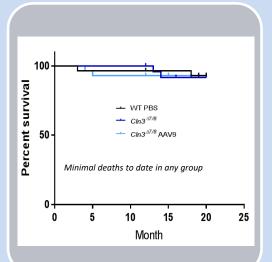
## **CLN3**Preclinical Data Overview

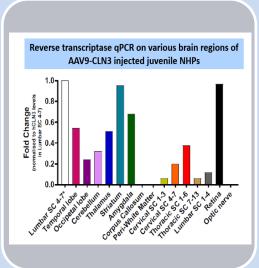
#### CLN3: Preclinical Summary

AAV9-CLN3 Administration Resulted in Storage Material Reduction and Motor/Cognitive Function Improvement in Mouse Model of Disease and Widespread Expression in the Brain of NHPs









Reduction of storage material in mouse model

Improvement of motor function and cognitive behavior in mouse model

Comparable survival in mouse model

Widespread gene expression in brain of NHPs

Source: Likhite 2018, 16<sup>th</sup> International Conference on Neuronal Ceroid Lipofuscinoses, IND-enabling Preclinical Studies for Batten Disease Gene Therapy; Meyer 2018, 16<sup>th</sup> International Conference on Neuronal Ceroid Lipofuscinoses, From mouse to human –Translating intrathecal gene therapy for NCLs;

#### **CLN3: Clinical Status**

**Active IND** 

**GMP** clinical supply available

**Study initiated at NCH** 

FPI anticipated in coming months

CLN3

1st to Clinic

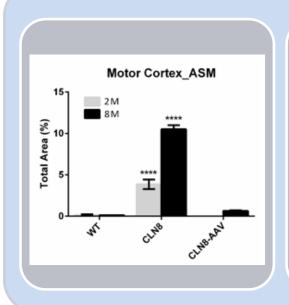


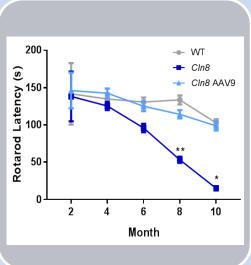


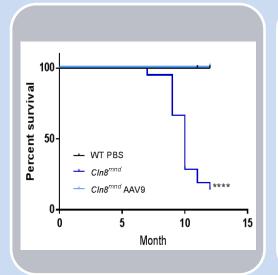
## **CLN8**Preclinical Data Overview

#### **CLN8: Preclinical Summary**

AAV9-CLN8 Administration Resulted in Storage Material Reduction, Motor/Cognitive Function Improvement and Extended Survival in Mouse Model of Disease







Data pending

Reduction of storage material in mouse model

Improvement of motor function and cognitive behavior in mouse model

Extended survival in mouse model

Protein expression in brain of NHPs

Source: Likhite 2018, 16<sup>th</sup> International Conference on Neuronal Ceroid Lipofuscinoses, IND-enabling Preclinical Studies for Batten Disease Gene Therapy; Meyer 2018, 16<sup>th</sup> International Conference on Neuronal Ceroid Lipofuscinoses, From mouse to human –Translating intrathecal gene therapy for NCLs;



## Manufacturing

#### Manufacturing: Proven Track Record at NCH

Long **Term** Mid **Term** Near **Amicus Term Manufacturing NCH to Supply Future Clinical Studies GMP Clinical Supply Available for Tech Transfer to Ongoing Studies CMOs** 





# Deal Summary & Closing Remarks

#### **Upcoming Program Milestones**

**Anticipating Multiple Program Milestones throughout 2018 & 2019** 

First Patient in CLN3 Phase 1/2 Study

Complete Enrollment in CLN6 Phase 1/2 Study

**Preliminary Phase 1/2 Data in CLN6** 

Complete Enrollment in Initial Cohort in CLN3 Phase 1/2 Study

**Preclinical Proof of Concept in Other Programs** 



#### Transaction Terms & Financing Overview

**Acquisition to Drive Value as We Build the Leading Gene Therapy Pipeline in Metabolic Rare Diseases** 

| CONSIDERATION*   |
|--|
| □ \$100M upfront cash payment  |
| ☐ Up to \$15M in development milestones and \$262M in BLA/MAA submission and approval milestones   |
| ☐ No more than \$75M owed over next 4 years  |
| ☐ Up to \$75M in tiered sales milestones (Tiers: \$500M/\$750M)                                    |
| PHARMAKON ADVISORS FINANCING   |
| ☐ Acquisition and several years of related development costs financed through \$150M debt facility |
| ☐ 5 year term; 4 years interest only; No equity dilution   |
| TIMING   |
| ☐ Deal closed  |



#### Amicus Vision: Delivering for Patients and Shareholders

To build a top-tier, fully integrated, global biotechnology company whose medicines treat 5,000+ patients with \$1B+ in worldwide sales revenue by 2023



>350 Patients\* | \$36.9M Global Sales







## Thank You

"Our passion for making a difference unites us"
-Amicus Belief Statement

