



Unlocking protein production with **translational read-through** for **rare genetic** diseases

**Canaccord Genuity Growth Conference**

**August 8, 2019**

# Forward-Looking Statements

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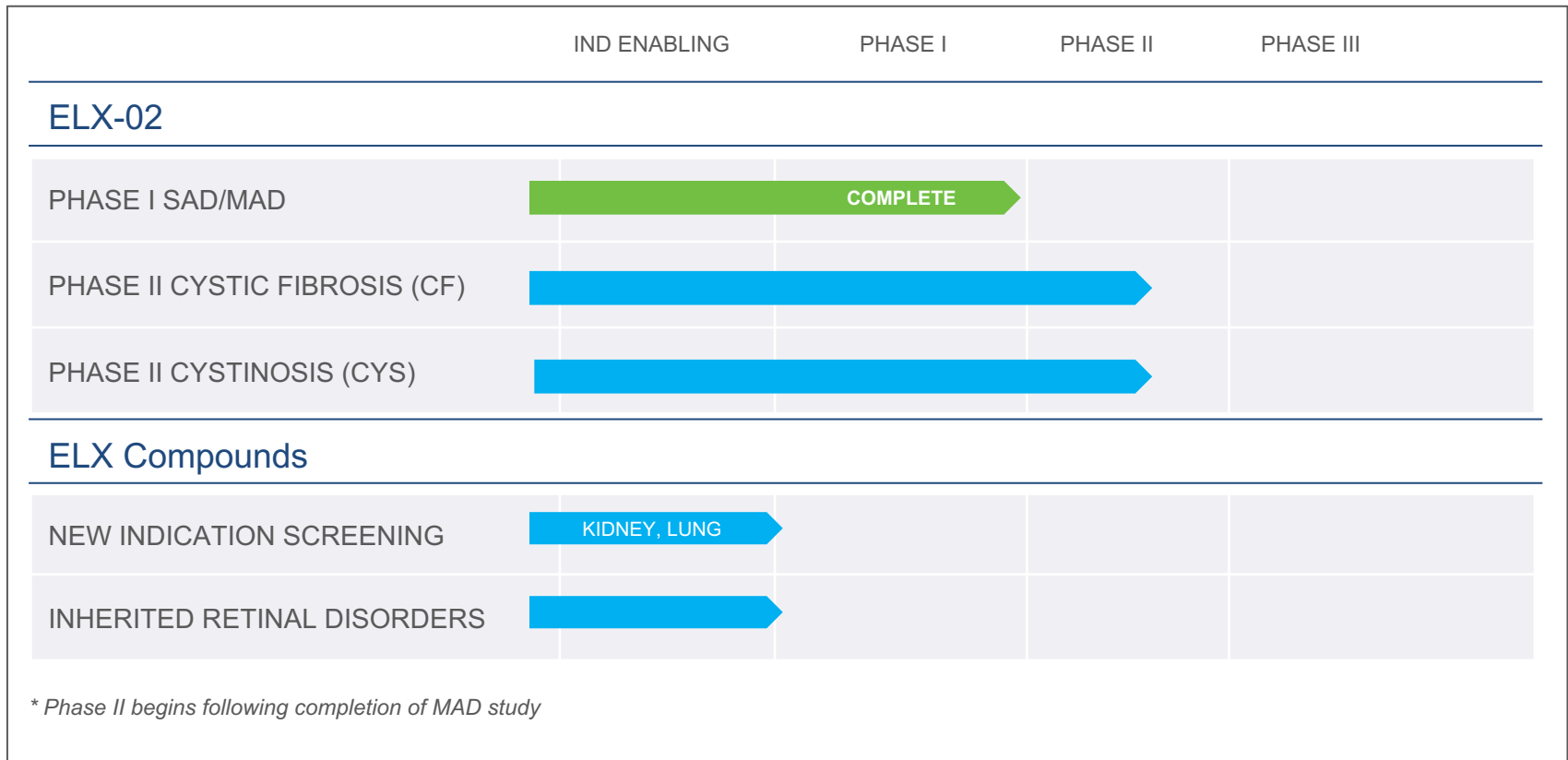
*This presentation contains forward-looking statements, which are generally statements that are not historical facts. Forward-looking statements can be identified by the words "expects," "anticipates," "believes," "intends," "estimates," "plans," "will," "outlook" and similar expressions. Forward-looking statements are based on management's current plans, estimates, assumptions and projections, and speak only as of the date they are made. We undertake no obligation to update any forward-looking statement in light of new information or future events, except as otherwise required by law. Forward-looking statements involve inherent risks and uncertainties, most of which are difficult to predict and are generally beyond our control. Actual results or outcomes may differ materially from those implied by the forward-looking statements as a result of the impact of a number of factors, including: the development of the Company's read-through technology; the approval of the Company's patent applications; the Company's ability to successfully defend its intellectual property or obtain necessary licenses at a cost acceptable to the Company, if at all; the successful implementation of the Company's research and development programs and collaborations; the Company's ability to obtain applicable regulatory approvals for its current and future product candidates; the acceptance by the market of the Company's products should they receive regulatory approval; the timing and success of the Company's preliminary studies, preclinical research, clinical trials, and related regulatory filings; the ability of the Company to consummate additional financings as needed; as well as those discussed in more detail in our Annual Report on Form 10-K and our other reports filed with the Securities and Exchange Commission.*

# Eloxx Pharmaceutical Highlights

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- **Experienced Leadership Team**
- **Phase 2 ELX-02 Clinical Trial in Cystic Fibrosis**
  - U.S. IND Open
  - Cystic Fibrosis Foundation Endorsed Protocol
  - Dr. Ahmet Uluer, Director of Adult Cystic Fibrosis Program, Boston Children's Hospital, Lead U.S. Investigator
  - Dr. Eitan Kerem, Head of Division of Pediatrics, Children's Hospital, Haddassah Medical Center, Global Lead Investigator
- **Phase 2 ELX-02 Clinical Trial in Cystinosis**
  - Dr. Paul Goodyer, Professor of Pediatrics, McGill University, Principal Investigator
  - Non-dilutive funding from Genome Quebec and Genome Canada
- **Topline ELX-02 Phase 2 Data in Cystic Fibrosis and Cystinosis in 2019**
- **New Indication Screening Ongoing (Eye, Kidney, Lung)**
- **Actively Developing Business Development Opportunities to Advance Full Pipeline and Expand Therapeutic Programs**

# Eloxx Pipeline





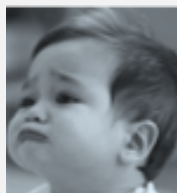
# The Potential for Read-Through of Rare Genetic Diseases

**>1,800**

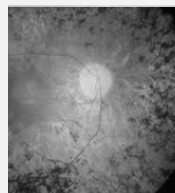
**Genetic diseases involve nonsense mutations**



**Cystic Fibrosis**



**Cystinosis**



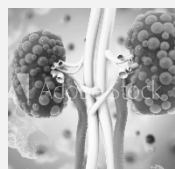
**Retinitis Pigmentosa**



**Usher Syndrome**



**Primary Ciliary Dyskinesia**



**Polycystic Kidney Disease**

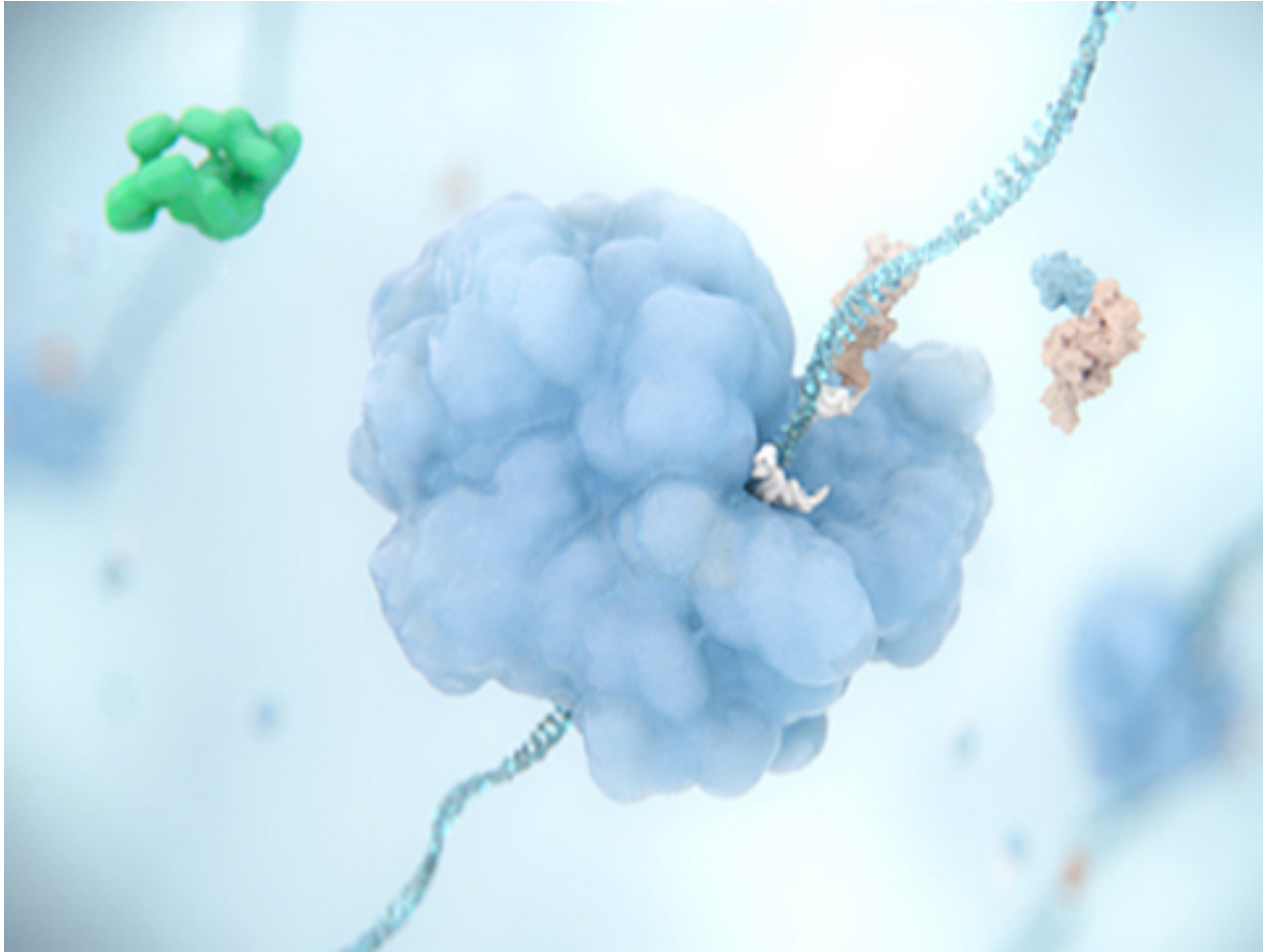
- In every genetic disease a subset of patients have nonsense mutations that impair the production of essential proteins
- Translational read-through is directed at restoring the production of full length proteins by overcoming the premature stop codon and nonsense mediated decay

**Advances in our understanding of translational read-through enables design of novel small molecules**

ELOXX proprietary library of novel read-through product candidates have been evaluated for activity in over 10 rare disease areas

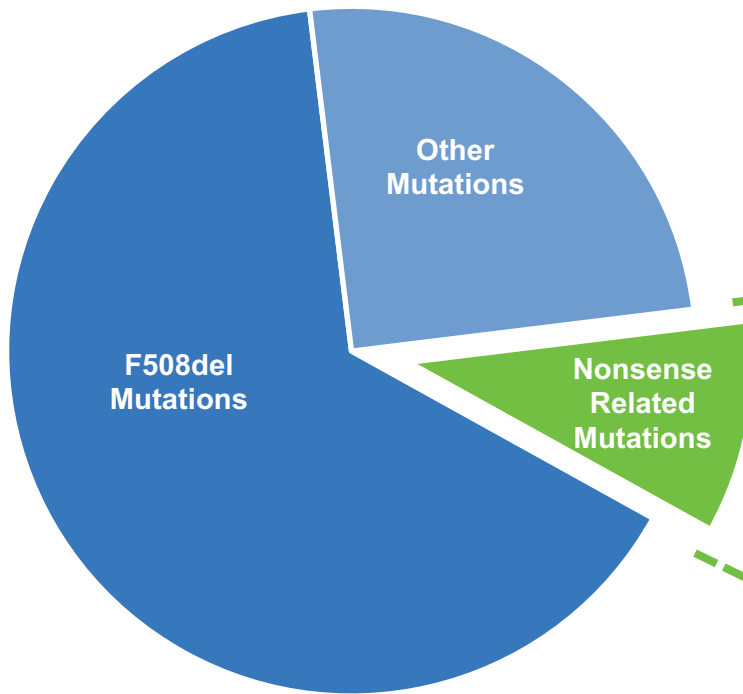
ELOXX is advancing molecules for subcutaneous and intravitreal dosing for diseases of the lung, kidney, eye and other target organs

# Eukaryotic Ribosomal Selective Glycosides (ERSGs) Nonsense Mutation Suppressors Rescue Full-Length Protein



# Cystic Fibrosis Nonsense Mutation Patients Represent a Key Unmet Need Population

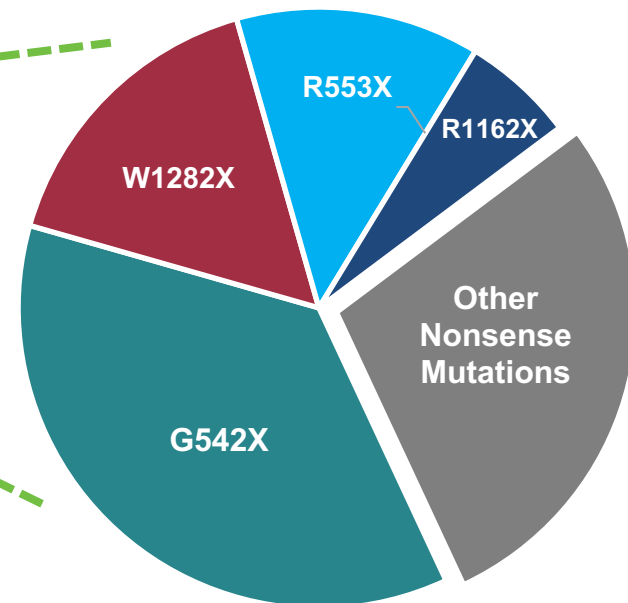
GLOBAL CYSTIC FIBROSIS PATIENTS  
BY MUTATION/GENOTYPE



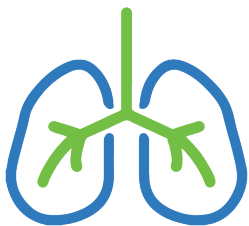
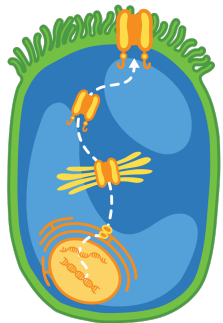
10 - 13%

No Currently Approved Drugs  
To Treat CFTR Nonsense Mutations

CFTR NONSENSE  
MUTATION SUBTYPES



# ELX-02: ERSG In Development For Nonsense Mediated Cystic Fibrosis

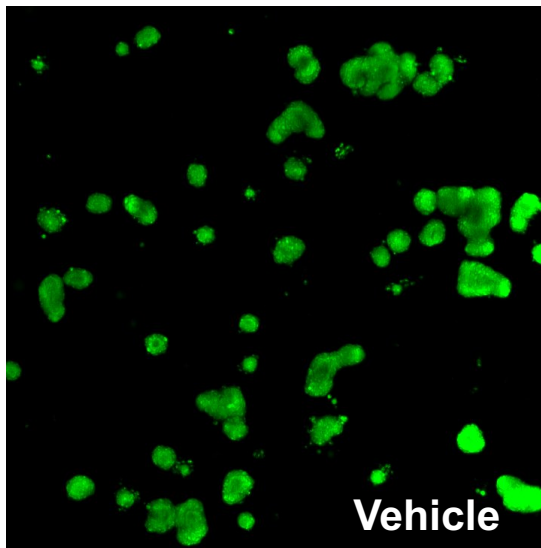


- ELX-02 is a small molecule that permits read-through of nonsense mutations
  - Defined interaction with the ribosome
  - High selectivity for the eukaryotic cytoplasmic ribosome relative to mitochondrial ribosome
- ELX-02 demonstrates read-through in multiple cystic fibrosis model systems
  - Pronounced *CFTR* read-through demonstrated in plasmid, HBE, FRT, transgenic mice and patient-derived organoids
  - Significant read-through demonstrated for *G542X*, *W1282X*, *R553X*, *R1162X*, and *E60X* alleles which represent the most common nonsense population
  - Defined MOA: Demonstrated significant increases in CFTR function, protein and mRNA
- ELX-02 is progressing to Phase 2 clinical studies
  - Phase 2 focus on patients with *G542X* genotype
  - Planned topline patient data will be reported in 2019

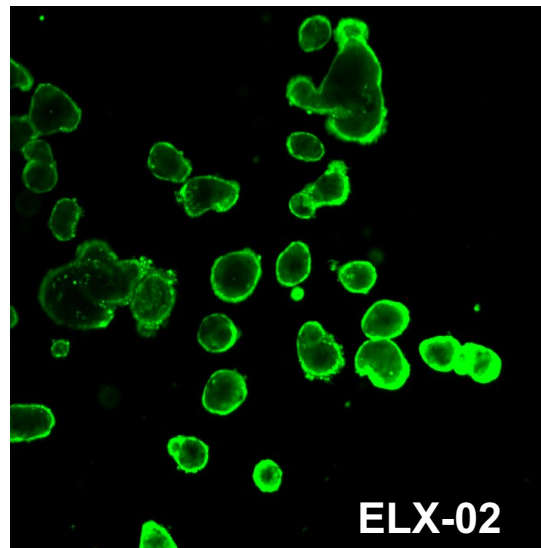


# Organoid Swelling Assay Demonstrates CFTR Function

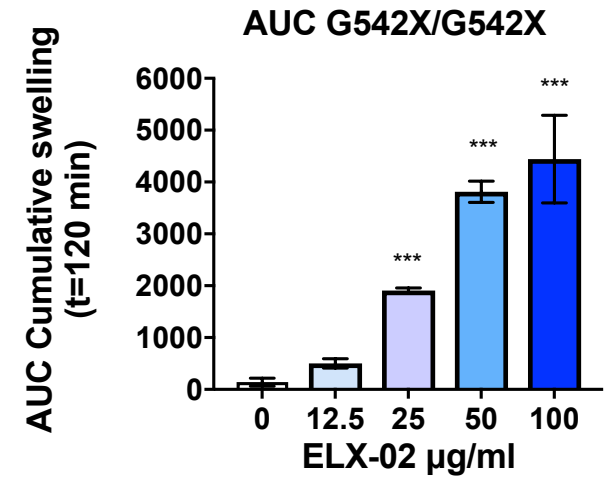
## Cystic Fibrosis Organoid dose-responsive swelling assay response



Patient Organoid without drug treatment:  
No Swelling of Organoids

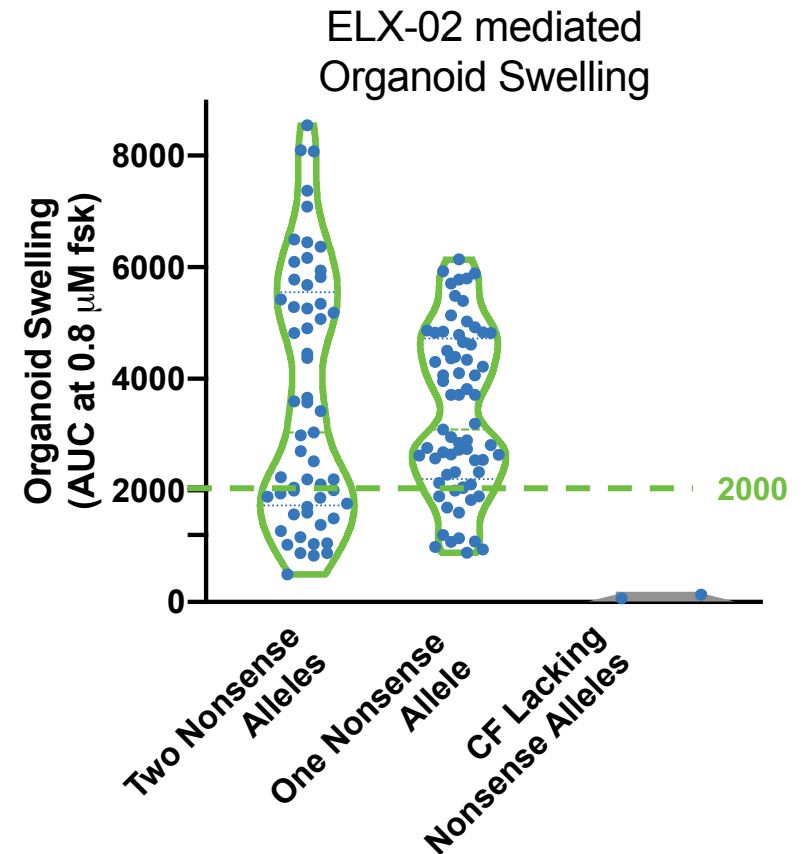
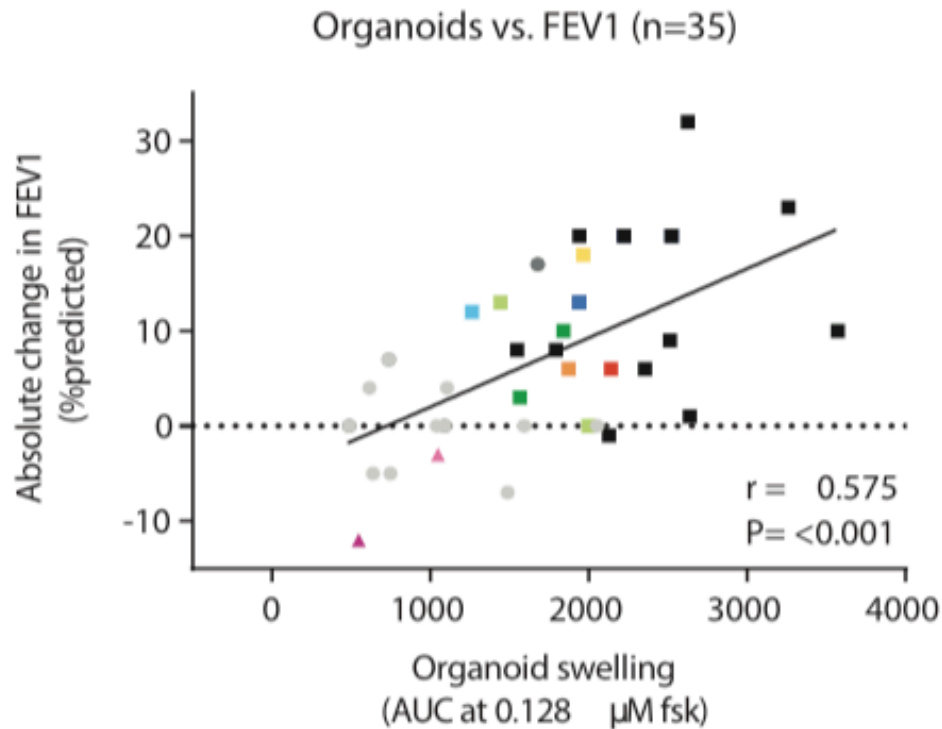


Patient Organoid with ELX-02 treatment:  
Swelling of Organoids



Swelling quantification of patient organoid with ELX-02 treatment.

# ELX-02 Response in Organoids Compares Favorably to Published Results

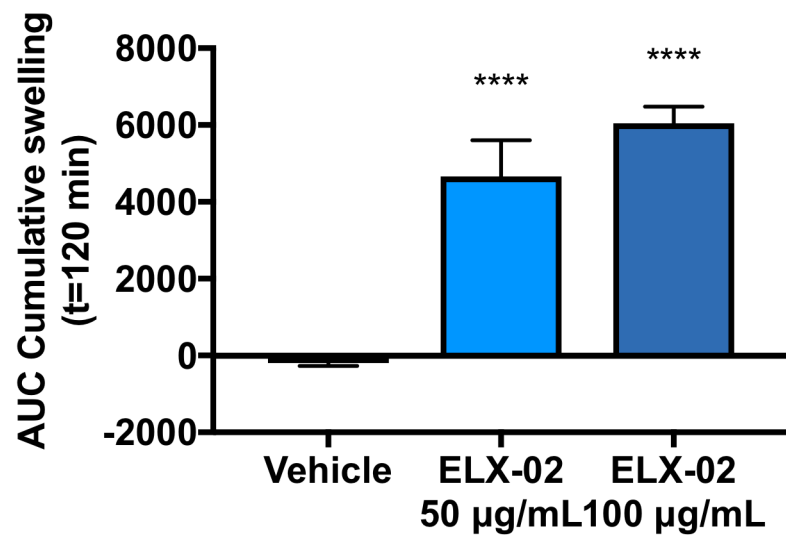


Berkers et al. Cell Reports (2019) Rectal Organoids Enable Personalized Treatment of Cystic Fibrosis.

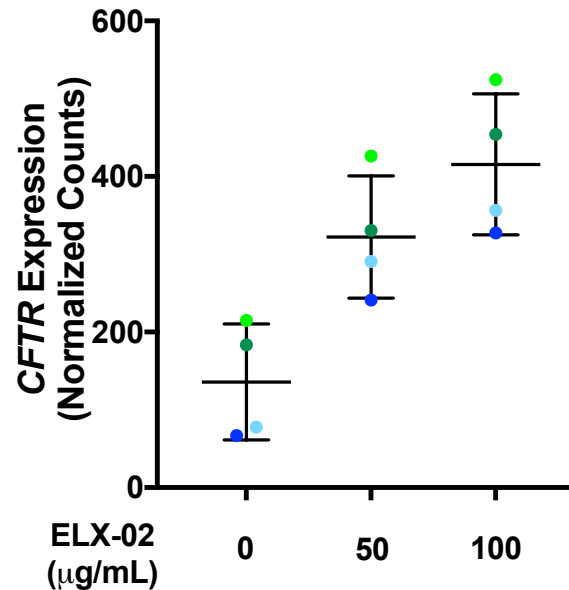
Eloxx data on file.

# Homozygous Nonsense Mutation (G542X)

SWELLING (FUNCTION) ASSAY

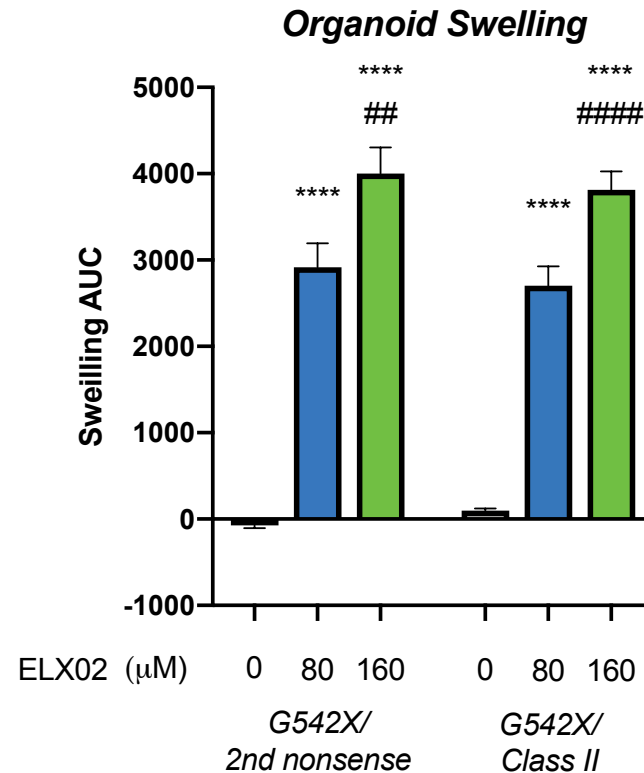


NANOSTRING (MRNA) ASSAY



# ELX-02 Mediated Organoid Swelling Is Equivalent in Organoids With One or Two Nonsense Mutations

- Significant increase in organoid swelling is observed in both G542X organoids with a second nonsense mutation and heterozygous organoids.
- Experiments used 0.8  $\mu$ M Forskolin



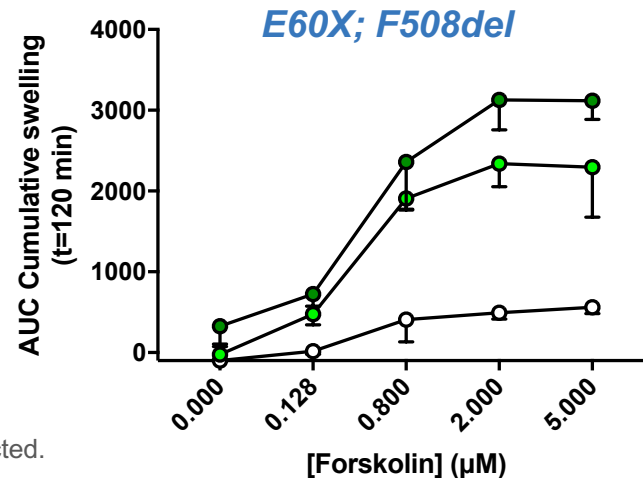
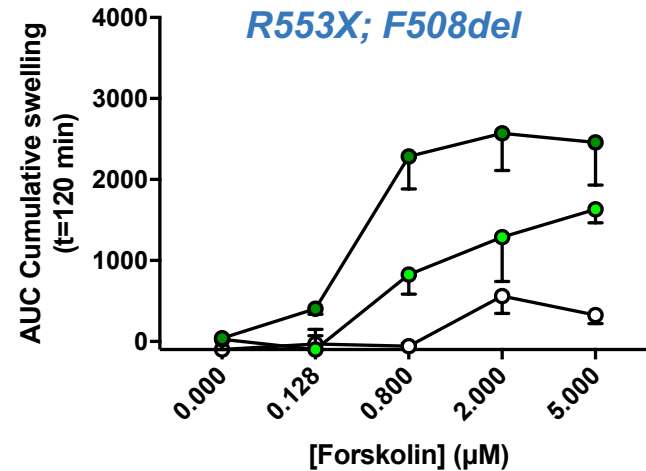
ordinary one-way ANOVA with Tukey's multiple comparison testing was used,, \*\*\*\*  $p < 0.0001$  versus vehicle control, ##  $p < 0.01$  versus next lower concentration, , #####  $p < 0.0001$  versus next lower concentration. Data represent >40 biological replicates per group from 2 or 4 independent patient organoids, respectively.






# ELX-02 Organoid Response is Observed Across a Range of CF Genotypes

-  G542X; G542X
-  G542X; F508del
-  G542X; R1066C
-  R1162X; F508del
-  G542X; W1282X
-  W1282X; W1282X
-  **R553X; F508del**
-  **E60X; F508del**

## New Genotypes



key

-  ELX-02 0 μg/ml
-  ELX-02 50 μg/ml
-  ELX-02 100 μg/ml

Eloxx data on file  
Data from multiple individuals with the same genotypes also collected.

# ELX-02 Completed Phase 1 Studies



January 16, 2019

Safety, Tolerability, and Pharmacokinetics of Single Ascending Doses of ELX-02, a Potential Treatment for Genetic Disorders Caused by Nonsense Mutations, in Healthy Volunteers

CLINICALTRIALS.GOV  
**Identifier: NCT03292302**

COMPLETED



CLINICALTRIALS.GOV  
**Identifier: NCT03309605**

A Phase 1, Randomized, Double-Blinded, Placebo-Controlled, Third Party Open, Multiple Dose Escalation, Single Center Study to Evaluate the Safety, Tolerability and Pharmacokinetics of Subcutaneously Administered ELX-02 in Independent Consecutive Cohorts of Healthy Subjects

COMPLETED



# We Believe Demonstrated Preclinical Results De-risk Phase 2 Cystic Fibrosis Program

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- Pronounced CFTR read-through demonstrated in plasmid, HBE, FRT, transgenic mice and patient-derived organoids
- ELX-02 permits dose-dependent increases in *CFTR* mRNA
  - Nonsense mediated decay activity is detectable through 3'/5' binding ratios
- ELX-02 dose-dependently increases *CFTR* mRNA stability
  - Response is most pronounced in organoids bearing two nonsense alleles
  - Contributions of the NMD pathway are currently under evaluation
- ELX-02 increases CFTR function in organoids bearing nonsense alleles representing the most common of the cystic fibrosis nonsense genotype population

# Phase 2 Cystic Fibrosis Top Line Data in 2019

- **Phase 2 Clinical Trial Program**

- ✓ US IND Open
- ✓ Protocol Endorsed by Cystic Fibrosis Foundation
- ✓ Clinical Trial Application (CTA) approved, EU CFS “high priority” for Phase 2 Protocol
- ✓ Dr. Ahmet Uluer, Director, Adult Cystic Fibrosis Program at Boston Children’s Hospital lead US investigator
- ✓ Dr. Eitan Kerem, Head of Division of Pediatrics, Children’s Hospital, Haddassah Medical Center

- **Phase 2 Protocol**

- Enrolling up to 24 patients with the G542X nonsense mutation on one or both alleles in the U.S., Europe and Israel
- 4 increasing doses of ELX-02 ranging from 0.3 up to 3.0 mg/kg/day
- Measuring changes in sweat chloride consistent with other Phase 2 trials for approved drugs



# North American Cystic Fibrosis Conference (NACFC)

## October 31 - November 2, 2019



**“Investigational Drug ELX-02 Mediates CFTR Nonsense Mutation Read-through To Increase *CFTR* mRNA CFTR Protein Translation and CFTR Function”**  
**November 1, 2019 2:15 p.m. -3:50 p.m. CDT ORAL Workshop: New & Emerging Therapies to Correct the Basic Defect”**

**“Pharmacokinetics, Safety, and Tolerability of Multiple Ascending Doses of ELX-02 in Healthy Volunteers, a Potential Treatment for Cystic Fibrosis Caused by Nonsense Mutations”** **October 31, 2019 11:15 a.m. – 1:45 p.m. CDT POSTER Session 1**

**“Pharmacokinetics, Safety, and Tolerability of Single Ascending Doses of ELX-02 in Healthy Volunteers, a Potential Treatment for Cystic Fibrosis Caused by Nonsense Mutations”** **11:15 a.m. – 1:45 p.m. CDT POSTER Session 1**

# Phase 2 Cystinosis Top Line Data in 2019

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- **Phase 2 Clinical Trial Program**

- ✓ Renal Impairment Study Completed
- ✓ Enrolling Phase 2 Clinical Trial in Canada
- ✓ Non-dilutive funding from Genome Quebec and Genome Canada
- ✓ Cystinosis Research Foundation provided funding for preclinical phase
- ✓ Dr. Paul Goodyer, Professor of Pediatrics at McGill University is the Principal Investigator

- **Phase 2 Protocol**

- Enrolling 6 patients with nephropathic cystinosis with at least 1 nonsense mutation in the cystinosis gene
- Three increasing doses of ELX-02 ranging from 0.3 up to 2.0 mg/kg/day
- Measuring the dose-dependent effect of ELX-02 on cysteine levels in white blood cells

# ELX-02 Completed Phase 1 Studies

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Identifier: NCT0 NCT03776539

**A Study to Evaluate the Effects of Renal Impairment on the Pharmacokinetics of ELX-02**

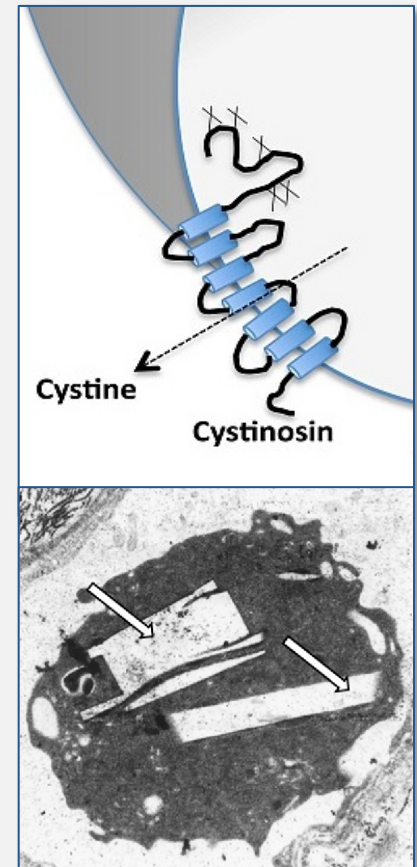
COMPLETED



- ✓ Mild, Moderate, Severe Renal Impairment Patient Cohort dosing complete
- ✓ Data analysis ongoing
- ✓ Preliminary results consistent with pK model and generally supportive of continued development including indications where individuals may have renal impairment as a component of ongoing renal disease

# Cystinosis Development Program

- Ultra-rare lysosomal storage disease
- Caused by mutations in cystinosin (CTNS)
  - Cysteine efflux channel
- Cystine lysosomal accumulation causes manifestations of disease
- The current standard of care, Cysteamine acts within the lysosome to convert cystine into forms which can exit the lysosome via cysteine transport pathways
- W138X most common nonsense mutation is estimated to represent 1/3 of patient population
- Currently available data on our investigational drug candidate, ELX-02, suggest the potential to:
  - Increase translational read-through
  - Reduce NMD
  - Restore CTNS mRNA to near normal levels
  - Lower cystine accumulation in vitro and in vivo





Physiology and Pharmacology

## Beneficial Read-Through of a *USH1C* Nonsense Mutation by Designed Aminoglycoside NB30 in the Retina

Tobias Goldmann,<sup>1</sup> Annie Rebibo-Sabbah,<sup>2</sup> Nora Overlack,<sup>1</sup> Igor Nudelmann,<sup>1</sup> Valery Belakhov,<sup>3</sup> Timor Baasov,<sup>3</sup> Tamar Ben-Yosef,<sup>2</sup> Uwe Wolfrum,<sup>1,4</sup> and Kerstin Nagel-Wolfrum<sup>1,4</sup>

**PURPOSE.** The human Usher syndrome (USH) is the most frequent cause of inherited combined deaf-blindness. USH is clinically and genetically heterogeneous, assigned to three clinical types. The most severe type is USH1, characterized by profound inner ear defects and retinitis pigmentosa. Thus far, no effective treatment for the ophthalmic component of USH exists. The p.R31X nonsense mutation in *USH1C* leads to a severe retinal degeneration.

**CONCLUSIONS.** Commercial aminoglycosides and NB30 induced significant read-through of the *USH1C* p.R31X nonsense mutation. However, the observed read-through efficiency, along with its significantly reduced toxicity and good biocompatibility, indicate that the novel derivative NB30 represents a better choice than commercial aminoglycosides to read-through the p.R31X nonsense mutation in *USH1C*.

OPEN ACCESS Freely available online

PLOS one

## Ex Vivo Treatment with a Novel Synthetic Aminoglycoside NB54 in Primary Fibroblasts from Rett Syndrome Patients Suppresses *MECP2* Nonsense Mutations

Manuela Vecsler,<sup>1,2,3</sup> Bruria Ben Zeev,<sup>3,4</sup> Igor Nudelmann,<sup>3</sup> Yair Anikster,<sup>3</sup> Amos J. Simon,<sup>5</sup> Nina Amariglio,<sup>6</sup> Gideon Rechavi,<sup>2,3</sup> Timor Baasov,<sup>3</sup> Eva Gak<sup>1,2,3\*</sup>

<sup>1</sup> Sagol Neuroscience Center, Sheba Medical Center, Tel Hashomer, Israel, <sup>2</sup> Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel, <sup>3</sup> Edmond Pediatric Hospital, Sheba Medical Center, Tel Hashomer, Israel, <sup>4</sup> The Edith and Joseph Fisher Enzyme Inhibitors Laboratory, Schulich Faculty of Chemistry, Technion Institute of Technology, Haifa, Israel, <sup>5</sup> Cancer Research Center, Sheba Medical Center, Tel Hashomer, Israel

### Abstract

**Background:** Rett Syndrome (RTT) is caused by mutations in the X-linked methyl CpG-binding protein 2 (*MECP2*) comprise a significant proportion of cases of RTT. Naturally occurring aminoglycosides, such as gentamicin, have been shown to suppress nonsense mutations related to genetic diseases, however, their use is limited by severe toxicity.

# Novel Compound Library has Demonstrated Activity across Multiple Orphan Diseases

BMJ Open  
DOI:10.1136/bmjopen-2013-019170

### RESEARCH REPORT

## Aminoglycoside-Induced Premature Stop Codon Read-Through of Mucopolysaccharidosis Type I Patient Q70X and W402X Mutations in Cultured Cells

Makoto Kamei,<sup>1</sup> Karina Kasperki,<sup>1</sup> Maria Faller,<sup>1</sup> Emma J. Parkinson-Lawrence,<sup>1</sup> Lisa Kangsgaard,<sup>1</sup> Valery Belakhov,<sup>2</sup> Timor Baasov,<sup>2</sup> John J. Hopwood,<sup>1</sup> Doug A. Brooks

Received: 19 April 2013; Revised: 11 August 2013; Accepted: 25 September 2013; Published online: 4 November 2013  
© 2013 BMJ Open and Springer-Verlag Berlin Heidelberg 2013

**Abstract:** The premature stop codon mutations, Q70X and W402X, in the *idua* gene, which cause the severe form of mucopolysaccharidosis type I (MPS I), are the most common *idua* mutations. Aminoglycosides (AGs) induce read-through of premature stop codons in cultured cells.

## Aminoglycoside antibiotics restore dystrophin function to skeletal muscles of *mdx* mice

Elisabeth R. Barton-Davis,<sup>1</sup> Laurence Cordier,<sup>1</sup> Daria I. Shoturma,<sup>1</sup> Stuart E. Leland,<sup>2</sup> and H. Lee Sweeney<sup>1</sup>

<sup>1</sup>Department of Physiology, and <sup>2</sup>Institute for Human Gene Therapy, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania  
Address correspondence to: H. Lee Sweeney, A700 Richards Building, Department of Physiology, 3700 Hamilton University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania 19104-6085, USA. Phone: (215) 898-7400; Fax: (215) 898-0475; E-mail: lsweeney@mail.med.upenn.edu.

Received for publication July 14, 1999, and accepted July 16, 1999.

Duchenne muscular dystrophy (DMD) is caused by mutations in the dystrophin gene that result in the absence of the dystrophin protein in skeletal muscle. A significant number of these mutations are premature stop codons. On the basis of the observation that aminoglycoside antibiotics induce read-through of premature stop codons in cultured cells, we tested whether these

### ORIGINAL RESEARCH

## Synthetic Aminoglycosides Efficiently Suppress Cystic Fibrosis Transmembrane Conductance Regulator Nonsense Mutations and Are Enhanced by Ivacaftor

Xiaojiao Xue,<sup>1,2</sup> Venkateshwar Mutyam,<sup>3</sup> Liang Tang,<sup>3</sup> Silpak Biewas,<sup>4</sup> Ming Du,<sup>5</sup> Laura A. Jackson,<sup>6</sup> Yanying Valery Belakhov,<sup>7</sup> Moran Shalev,<sup>7</sup> Fuqian Chen,<sup>7</sup> Jochen Schacht,<sup>8</sup> Robert J. Bridges,<sup>9</sup> Timor Baasov,<sup>3</sup> Jeong H. David M. Bedwell,<sup>1,4,5,6,\*</sup> and Steven M. Rowe<sup>1,3,4,6</sup>

Departments of <sup>1</sup>Genetics, <sup>2</sup>Medicine, <sup>3</sup>Pediatrics, <sup>4</sup>Cell Developmental and Integrative Biology, and <sup>5</sup>Microbiology, and <sup>6</sup>Gregory Fleming Cystic Fibrosis Research Center, University of Alabama at Birmingham, Birmingham, Alabama; <sup>7</sup>The Edith and Joseph Fisher Enzyme Inhibitors Laboratory, Schulich Faculty of Chemistry, Technion-Israel Institute of Technology, Haifa, Israel; <sup>8</sup>Kresge Hearing Research Institute, Department of Otolaryngology, University of Michigan Medical School, Ann Arbor, Michigan; and <sup>9</sup>Department of Physiology and Biophysics, Rosalind Franklin University, North Chicago, Illinois

### Abstract

New drugs are needed to enhance premature termination codon (PTC) suppression in the growing number of cystic fibrosis (CF) patients with PTC-causing mutations. We evaluated the efficacy of synthetic aminoglycosides provide a 10-fold improvement in therapeutic index over gentamicin and other first-generation aminoglycosides in suppressing PTC-causing mutations.

## NIH Public Access

### Author Manuscript

Mol Genet Metab. Author manuscript; available in PMC 2015 March 01.

Published in final edited form as:  
Mol Genet Metab. 2014 March; 111(3): 374–381. doi:10.1016/j.ymgme.2013.12.007.

## Long-Term Nonsense Suppression Therapy Moderates MPS I-H Disease Progression

Owen Gunn,<sup>1</sup> Yanying Dai,<sup>2</sup> Ming Du,<sup>3</sup> Valery Belakhov,<sup>3</sup> Jayakumar Kandasamy,<sup>2</sup> Trenton R. Schoeb,<sup>2</sup> Timor Baasov,<sup>2</sup> David M. Bedwell,<sup>4</sup> and Kim M. Keeling<sup>1</sup>

<sup>1</sup>Department of Microbiology, University of Alabama at Birmingham, Birmingham, AL, USA.  
<sup>2</sup>The Edith and Joseph Enzyme Inhibitors Laboratory, Schulich Faculty of Chemistry, Technion-Israel Institute of Technology, Haifa, Israel  
<sup>3</sup>Department of Genetics, University of Alabama at Birmingham, Birmingham, AL, USA

### Abstract

Nonsense suppression therapy is a therapeutic approach to ameliorate genetic diseases caused by premature termination codons (PTC) in the coding sequence of genes.

Hum Genet (2007) 122:373–381  
DOI 10.1007/s00439-007-0410-7

### ORIGINAL INVESTIGATION

## In vitro and ex vivo suppression by aminoglycosides of *PCDH15* nonsense mutations underlying type I Usher syndrome

Annie Rebibo-Sabbah,<sup>1</sup> Igor Nudelmann,<sup>1</sup> Zahair M. Ahmed,<sup>2</sup> Timor Baasov,<sup>2</sup> Tamar Ben-Yosef

Received: 19 April 2007 / Accepted: 19 May 2007 / Published online: 25 July 2007  
© Springer-Verlag 2007

**Abstract** Type I Usher syndrome (USH1) is a recessively inherited condition, characterized by profound prelingual deafness, vestibular ataxia, and progressive onset of retinitis pigmentosa (RP). While the auditory component of USH1 can be treated by cochlear implants, the retinal degeneration is irreversible. We evaluated the effect of aminoglycosides on the expression of *PCDH15* nonsense mutations in cultured cells.

## NIH Public Access

### Author Manuscript

Mol Genet Metab. Author manuscript; available in PMC 2013 January 1.

Published in final edited form as:  
Mol Genet Metab. 2012 January; 105(1): 116–125. doi:10.1016/j.ymgme.2011.10.005.

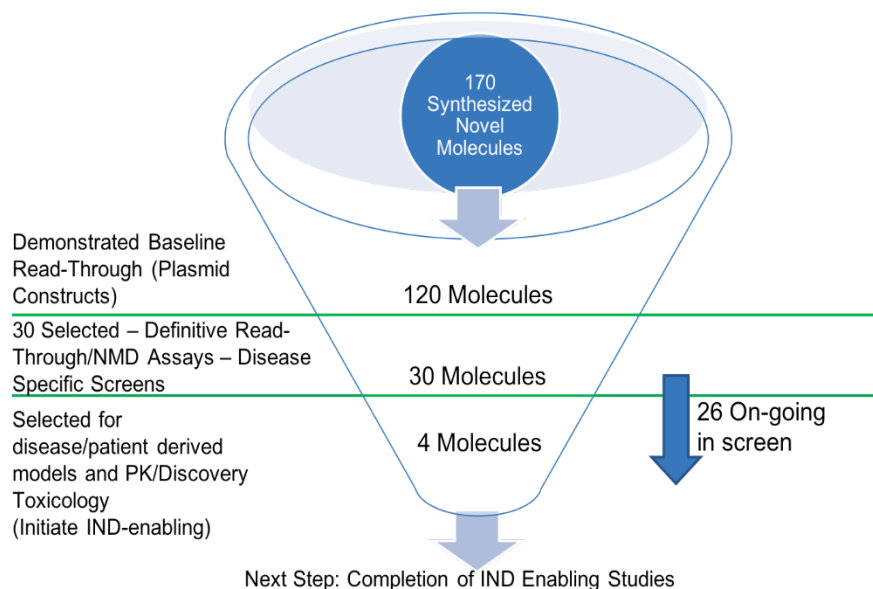
## The Designer Aminoglycoside NB84 Significantly Reduces Glycosaminoglycan Accumulation Associated with MPS I-H in the *Idua*-W392X Mouse

Dan Wang,<sup>1</sup> Valery Belakhov,<sup>2</sup> Jayakumar Kandasamy,<sup>2</sup> Timor Baasov,<sup>2</sup> Su-Chen Li,<sup>3</sup> Yu-Teh Li,<sup>3</sup> David M. Bedwell<sup>1,4</sup>, and Kim M. Keeling<sup>1</sup>

<sup>1</sup>Department of Genetics, University of Alabama at Birmingham, Birmingham, AL 35294, USA  
<sup>2</sup>The Edith and Joseph Enzyme Inhibitors Laboratory, Schulich Faculty of Chemistry, Technion-Israel Institute of Technology, Haifa, Israel  
<sup>3</sup>Department of Microbiology, University of Alabama at Birmingham, Birmingham, AL 35294, USA

# Advancing Our Portfolio of Novel ERSGs

## Multiple Novel Compounds Are Advancing To IND Enabling Studies



**EXTENSIVE INTELLECTUAL  
PROPERTY PORTFOLIO**

- Eloxx holds global rights on these library compounds
- ELX-02 Composition of Matter 2031 without extensions
- Library Composition of Matter from 2027-2038 or later
- Library Use Patents Expire 2036 or later

# Rare Kidney Diseases



- > 150 identified Rare Kidney Diseases
- Overall Prevalence: 60-80 cases per 100,000
- Fifth most common cause of ESRD

Patients with inherited kidney disorders rarely die (many progress to renal transplantation)

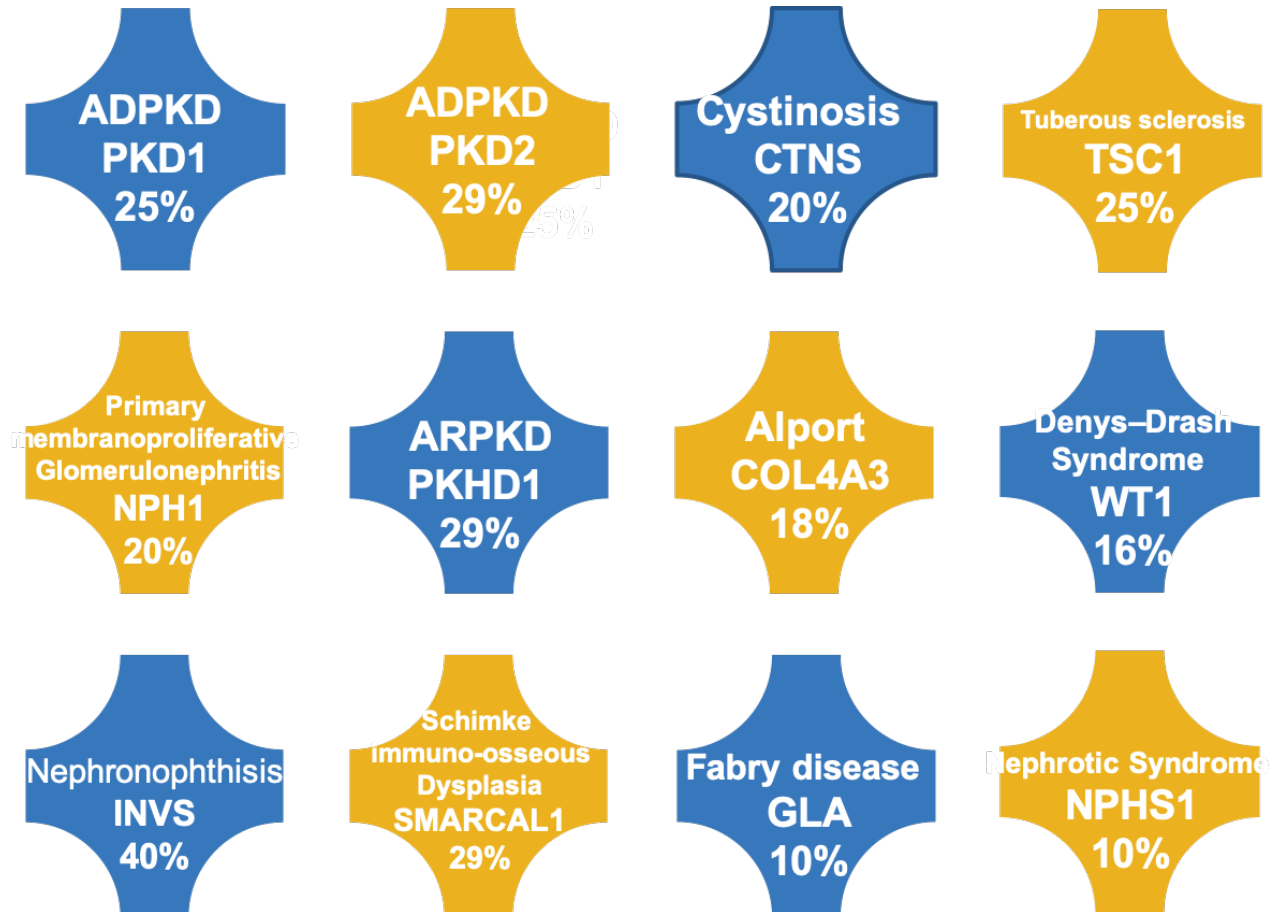
Results in poor health, low quality of life, multisystemic complications. *Devuyst & Gaury-Woodford - KDIGO Conference (2016)*

Nephropathic cystinosis is an autosomal recessive storage disease caused by defective transport of cystine out of lysosomes. The renal tubular damage of cystinosis, begins at 6 to 12 months of age, glomerular damage generally becomes apparent by 2 to 5 years of age and results in end-stage renal disease by 9 to 10 years of age unless cystine-depleting therapy is initiated early in life. Renal transplantation, often by age of 20, has transformed cystinosis from an exclusively pediatric disease to one that affects individuals up to (and potentially beyond) 50 years of age.

***Nonsense mutations are an important genetic variation in a wide range of rare kidney disorders including: Nephropathic Cystinosis, Autosomal Dominant Polycystic Kidney Disease, Cystinuria, and others***

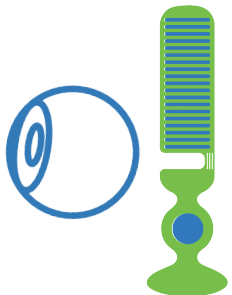
# Nephrology NSM mediated disease opportunities

Inherited Disease  
Target Gene  
NSM %




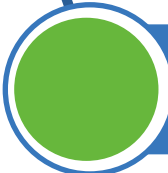
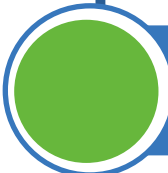

Source: Torra et al, UGA hopping: a sport for nephrologists too? Nephrol Dial Transplant (2010) 25: 2391–2395

# Ocular Program Development



- High unmet medical need and prevalence of nonsense mutations across inherited retinal diseases (IRDs)
- Screened multiple compounds from ERSG library for read-through and tolerability
- IND-enabling studies are progressing
- Emerging Profile Across Models
  - Compounds are appropriate for intravitreal administration
  - Compounds show retinal tolerability at doses 10-fold greater than anticipated efficacy range in sensitive species
    - No adverse ELX compound-related retinal anatomic or functional changes observed to date by histopathology and ERG
  - Dose-dependent read-through of Usher mutations greater than gentamicin reference
  - Encouraging PK demonstrating retina exposure
- Growing team of ophthalmic expertise
- Support from the FFB and Research Community

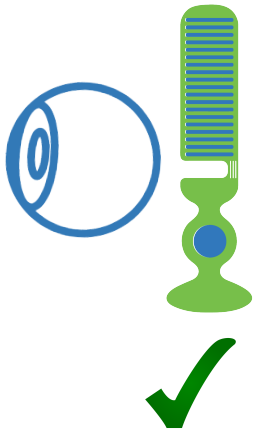
# Substantial Opportunities in Inherited Retinal Diseases

		Incidence	US Prevalence	Nonsense Proportion
	Usher Syndrome	3.2-6.2/ 100K	16.3K	20%
	Retinitis Pigmentosa	1-5/10K	67.0K	15-50%
	Choroideremia	1-9/100K	6.5K	36%
	Stickler's Syndrome	1-9/ 100K	66.0K	20%

Population values from National Organization for Rare Disorders (NORD) and Orphanet

Han et al, Korean J Pediatr 2016.; Wilkin et al, Am J Med Genet 2000; Freund et al, Mol Genet Genomic Med 2016; Aparisi et al, Orphan J Rare Dis 2014

# Emerging Profile of Read-through For Usher Syndrome



## **Tolerability**

At doses >10-fold  
over anticipated  
treatment level



**Read-through**  
of Usher  
mutations  
>gentamicin



**Pharmacokinetics**  
demonstrate  
substantial retinal  
exposure



**Focus**  
on developing  
therapies to  
prevent blindness

# Eloxx Pharmaceutical Highlights

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- **Experienced Leadership Team**
- **Phase 2 ELX-02 Clinical Trial in Cystic Fibrosis**
  - U.S. IND Open
  - Cystic Fibrosis Foundation Endorsed Protocol
  - Dr. Ahmet Uluer, Director of Adult Cystic Fibrosis Program, Boston Children's Hospital, Lead U.S. Investigator
  - Dr. Eitan Kerem, Head of Division of Pediatrics, Children's Hospital, Haddassah Medical Center, Global Lead Investigator
- **Phase 2 ELX-02 Clinical Trial in Cystinosis**
  - Dr. Paul Goodyer, Professor of Pediatrics, McGill University, Principal Investigator
  - Non-dilutive funding from Genome Quebec and Genome Canada
- **Topline ELX-02 Phase 2 Data in Cystic Fibrosis and Cystinosis in 2019**
- **Reported Cash & Cash Equivalents at June 30, 2019 of \$76.3M funded through top-line data and into 2021**





Thank you.

**Canaccord Genuity Growth Conference**

**August 8, 2019**