



DRUG “HIT” IDENTIFIED IN KS SCREENING USING iPSC

-RESEARCH UPDATE-

August 8, 2017 (12:00pm – 12:45pm EST)

K.I.D.S. IQ
PROJECT

Advancing drug development for
Kids with Intellectual Disability Syndromes

Today's Webinar Panelists



Hira Verma

- ▣ Chair, Co-Founder of K.I.D.S. IQ Project



Braden Root-McCaig (Moderator)

- ▣ Executive Director, K.I.D.S. IQ Project



Dr. Nael Nadif Kasri

- ▣ Group Leader, Department of Human Genetics, Radboud UMC, Nijmegen, The Netherlands

Submit Your Questions



To send in questions, please use WebEx's Q&A feature (located on the right-hand side of your screen, or at the top of your screen if you're in full view mode)

Please feel free to submit questions throughout the presentation (we will address questions both throughout the presentation and at the end during our Q&A portion)

What We'll Cover Today

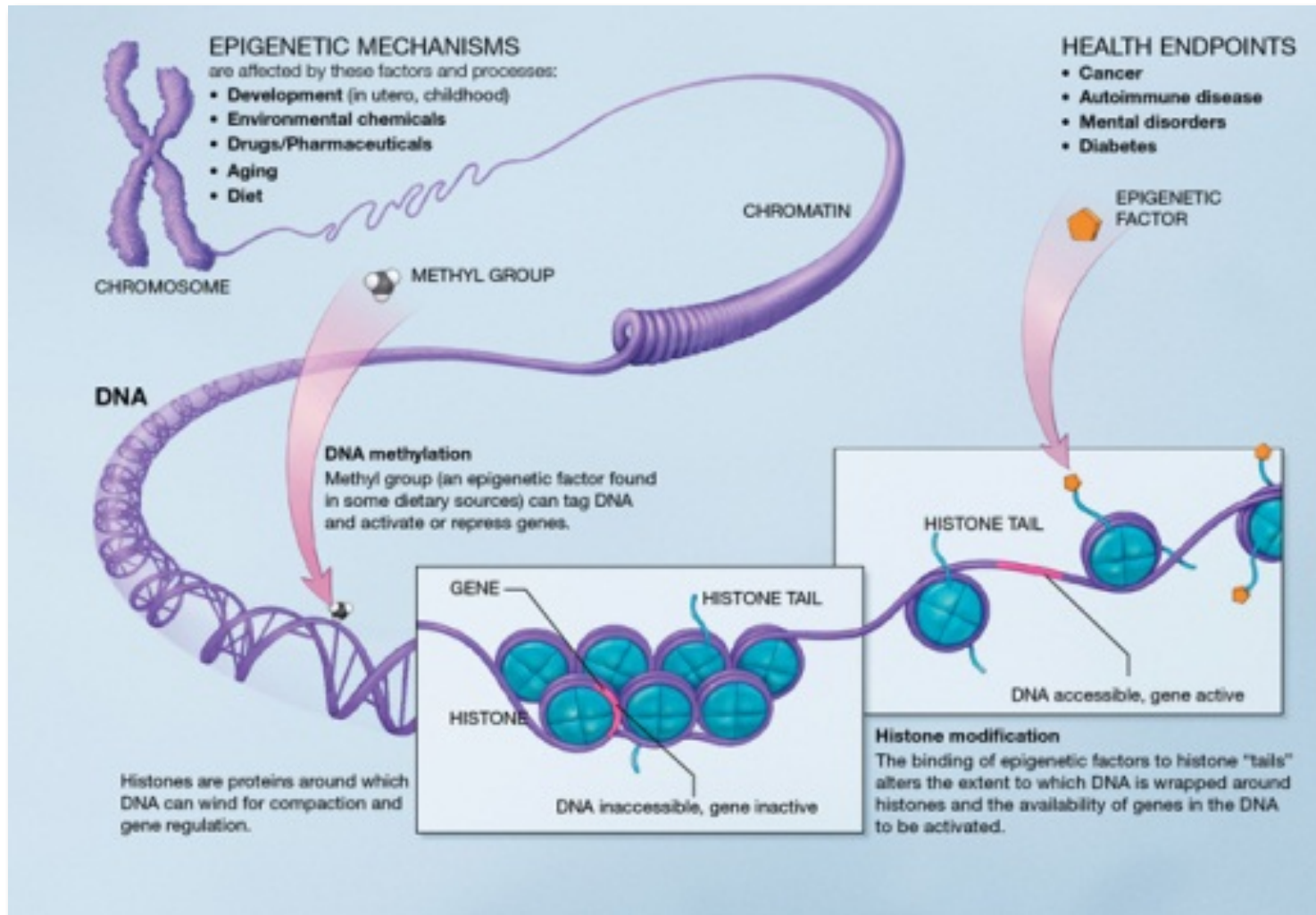
- ❑ K.I.D.S. IQ Project Mission
- ❑ Brief Kleefstra Syndrome overview
- ❑ What research method was used and why (iPSC overview)?
- ❑ What were the conclusions to this research?
- ❑ What is the path for drug development?
- ❑ Next steps and stage 2 of Raboud Medical Centre research
- ❑ Q&A session

Our Mission

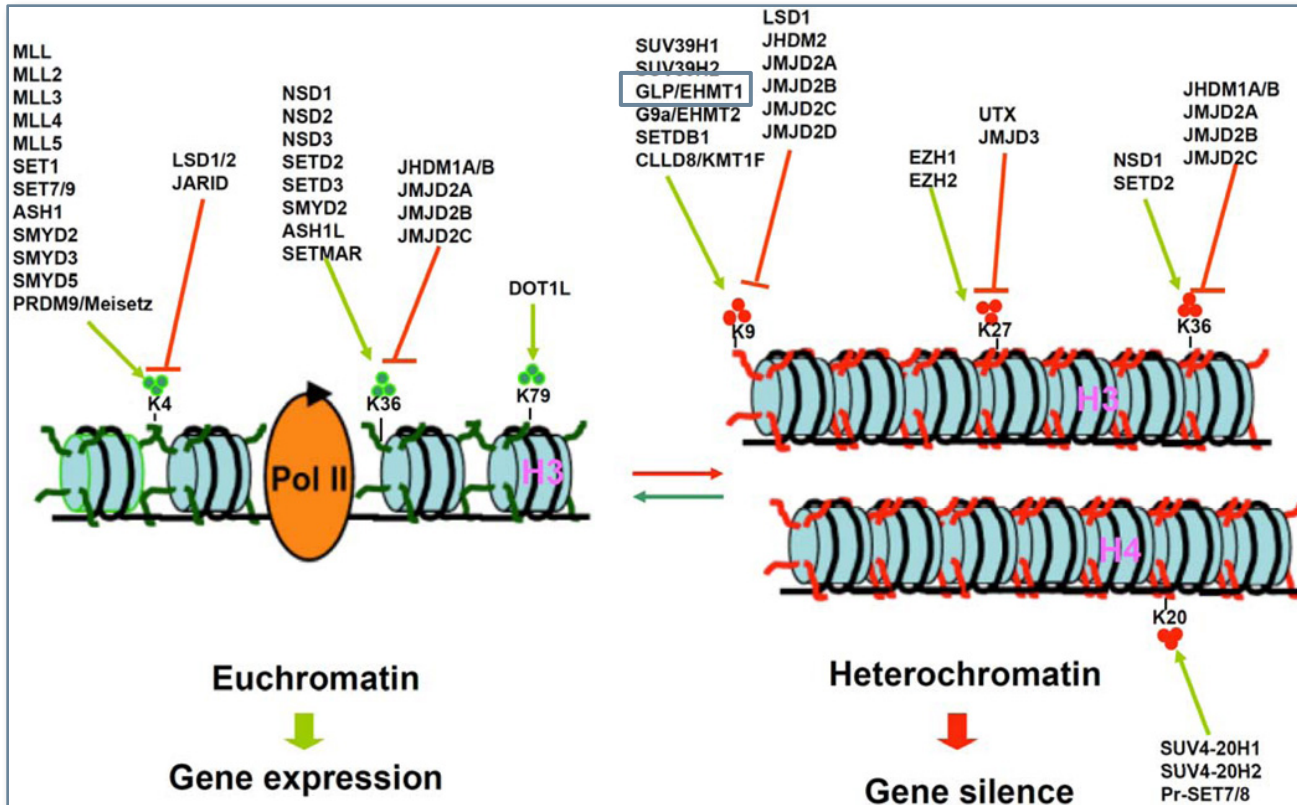
We are an international non-profit foundation focused on the advancement of drug treatments for reversible Intellectual Disability (ID) disorders, specifically those arising from a gene mutation. Our initial focus is on Kleefstra syndrome (KS) and related ID disorders.

We also aims to enhance the quality of life for those living with such ID disorders and their associated health issues by providing important educational information, programs and services.

KS Overview



Kleefstra Syndrome Overview



Mutations

- Deletions (~75%)
- Nonsense
- Frameshift

Core Phenotype

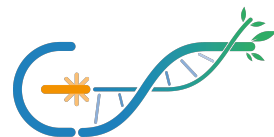
- Intellectual disability
- Speech issues
- Hypotonia
- Development delays
- Autistic-like features

Source: NIH/NLM – “Histone Lysine-Specific Methyltransferases and Demethylases in Carcinogenesis: New Targets for Cancer Therapy and Prevention”; authors – Xuejiao Tian, Saiyang Zhang, Hong-Min Liu, Yan-Bing Zhang, Christopher A Blair, Dan Mercola, Paolo Sassone-Corsi, and Xiaolin Zi (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3703250/>)



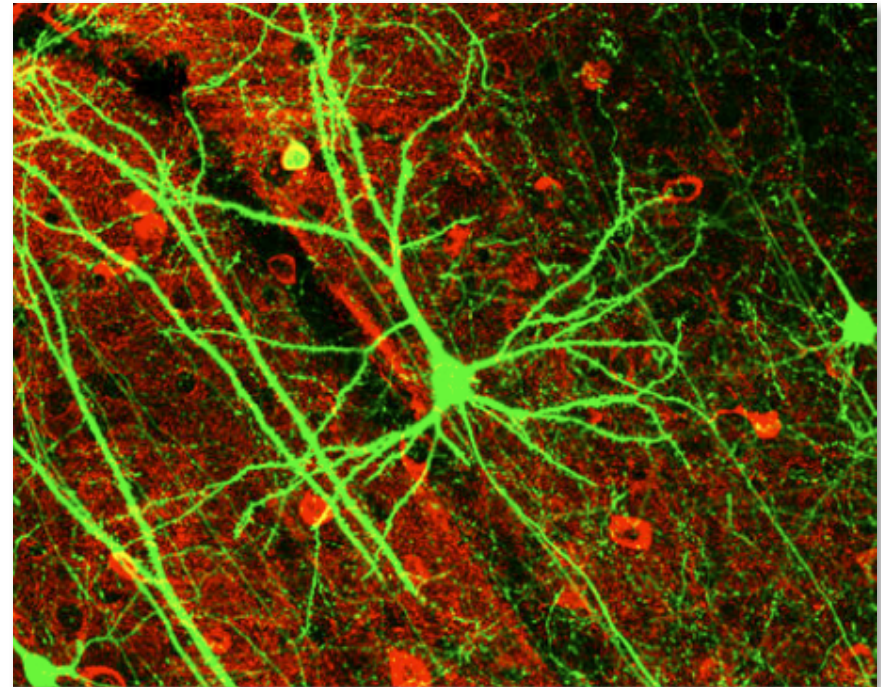
Research Overview

- Want to explain our approach and method



Induced Pluripotent Stem Cells (iPSC)

- New technology enables neurons to be derived from disease patients and control subjects (patients submit skin sample)
- Allows in vitro analysis (lab dishes) for discovering human neuron phenotypes
- ALS (Lou Gehrig's Disease) involves death of neurons
 - iPSC used to identify an anti-epilepsy drug to modify phenotype (neuronal hyperexcitability)



Source: Wikipedia (<https://en.wikipedia.org/wiki/File:GFPneuron.png>)



Research Method - Compound Screening

- Compounds can be evaluated in “high throughput screens” (HTS) studies or more targeted ones
 - ▣ Requires assay(s)
- Can also look to fast-track with FDA-approved (or similar) drugs



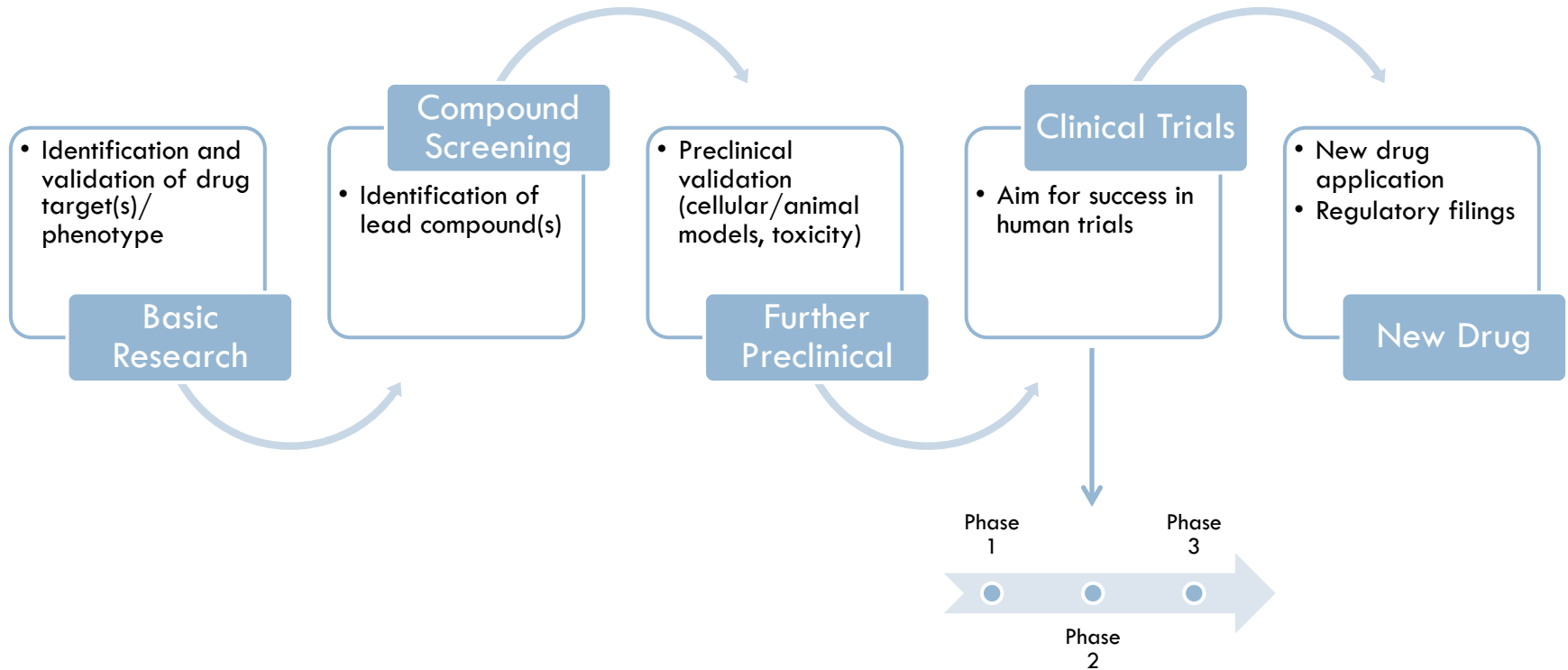
Image source: <http://www.uib.no/en/rg/biorec/67592/high-throughput-screening>



Research Conclusions

- Notes from Hira:
 - we cannot (nor do we want to) divulge that it is an LSD1 inhibitor or mention the name of the inhibitor (since that should remain confidential) but want people to have some info so as to be left with a meaningful update
 - it will be a bit tricky since you can't mention lsd1, but I think we can manage through a more general discussion - ie we looked at drugs that upregulate as well as those that had a scientific hypothesis - ie chromatin remodelers, counter-regulatory mechanisms, bdnf enhancers, etc.
 - It will be fine to say that we got a hit without mentioning which one (you should use a code name for the drug)

Simplified Drug Development Process



Source: NIH

Accelerated timelines are achievable with rare disorders

Next Steps - Research

- validation, further experimentation, advancing to mouse

Next Steps - Families

Stay Connected

- Newsletter signup (www.kidslQproject.org), ongoing webinar signups, Facebook Group

Submit Patient Data

- Patient database (www.kidslQproject.org)

Volunteer

- Wide variety of volunteer skills appreciated (web development, graphic design, media outreach, etc.)

Donate

- Visit www.kidslQproject.org (tax considerations by country)

Fundraise

- Crowdfunding campaign launching soon (create a family page)

QUESTION & ANSWERS



Please type your questions into the Q&A text box