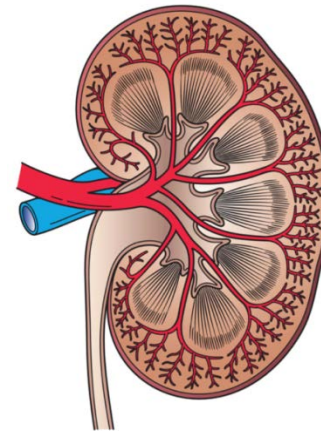


Repurposing Metformin to Treat the “Other” Diabetes

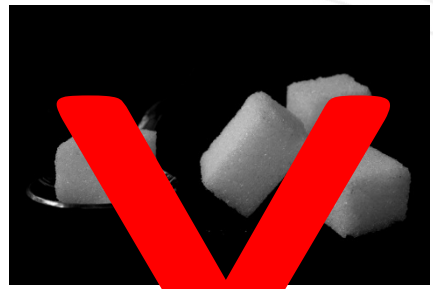
From the Laboratory of **Jeff Sands, MD, Janet Klein, PhD, & Mitsi Blount, PhD**
Nephrology, Emory



Cliff Michaels, Licensing Associate
OTT Breakfast Club, December 10th, 2013

Diabetes

Diabetes Mellitus

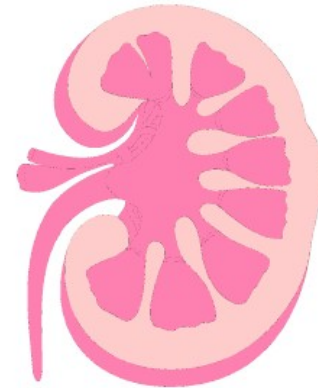


Diabetes Insipidus



Nephrogenic Diabetes Insipidus (NDI)

- Rare Disease – US & EP ~71,000
- Causes – Genetic (10%) Acquired (90%)
 - Most acquired due to lithium toxicity
- Severely impacts quality of life

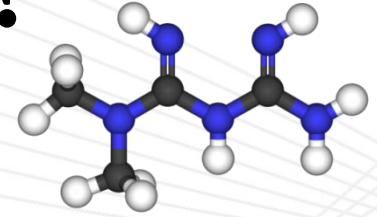


Disease Management

Strategy	Challenge
<ul style="list-style-type: none"> Discontinue lithium 	<ul style="list-style-type: none"> Removes effective therapy
<ul style="list-style-type: none"> Prescribe diuretics 	<ul style="list-style-type: none"> Address symptoms, not underlying cause Can't be use with Li Requires monitoring
<ul style="list-style-type: none"> Lifestyle changes 	
<ul style="list-style-type: none"> IV fluids & glucose if needed 	

Currently there are no therapies for treating NDI

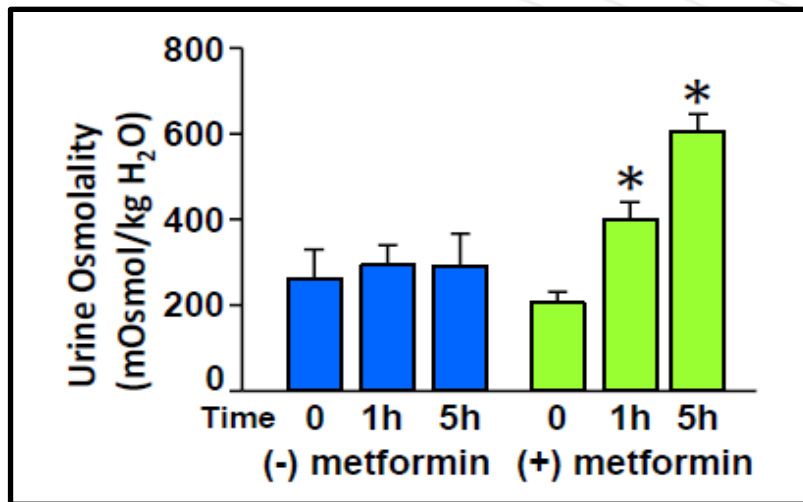
What is Metformin?



- Oral anti-diabetes mellitus drug
 - ↓ liver glucose production & ↑ insulin sensitivity
- Widely prescribed 1st line therapy
 - 48M prescriptions annually in the US alone
- Approved by FDA in 1990's & generically available as of 2010
- Relatively safe – low side effects

Does Metformin Work?

NDI mouse model = V₂R KO



Metformin treatment ↑
urine concentration and
lowers volume in KO mice

Metformin restores the function & the ability to concentrate urine

Overview

Summary -

- + Orphan Indication with no therapy
- + Approved therapeutic with no known off-label use
- + Positive preliminary animal data

Next Steps – Creation of Li mouse model & reproduction of KO experiments

IP – Provisional patent, room to develop new formulations/dosing & improve opportunity

Future – looking for entrepreneur

Thank you