

**Sensitivity and Specificity of the  
Nude Mouse Bioassay to the  
Clinical Islet Allograft Outcome.**

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# Outline

- **Islet product testing objectives**
- **Correlation of nude mouse bioassay data with human transplantation outcome**

# Islet Product Testing Objectives

- **Determine whether product release testing results are within a pre-defined specification range**
- **Determine whether manufacturing process controlled and consistent**
- **Prevent, detect, and correct deficiencies in the manufacturing process that may compromise product integrity or function, or may lead to the transmission of infectious agents**

# Assessing the Final Product

## Product safety

- Sterility
- Endotoxin
- Mycoplasma

## Product Quality

- Identity
- Purity
- Potency

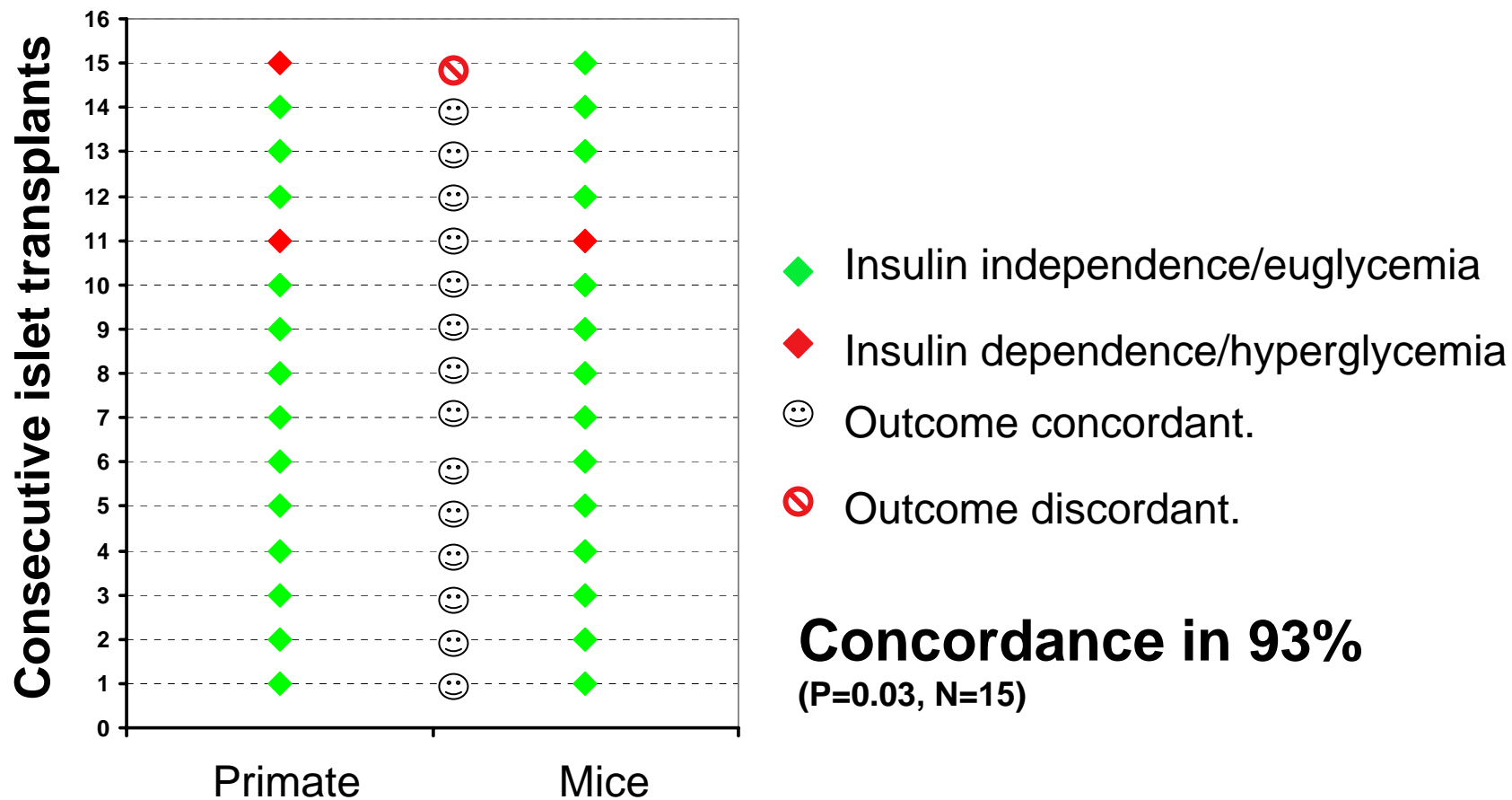
# **Correlation of Nude Mouse Bioassay Data with Human Transplant Outcome**

- **The diabetic nude mouse bioassay is considered the gold standard**

**BUT**

- **Do islet product testing results obtained in the diabetic nude mouse bioassay correlate with post-transplant islet function in type 1 diabetic recipients?**

# Concordance of primate and mouse recipients of primate islet grafts from the same donor with insulin independence/euglycemia as readout

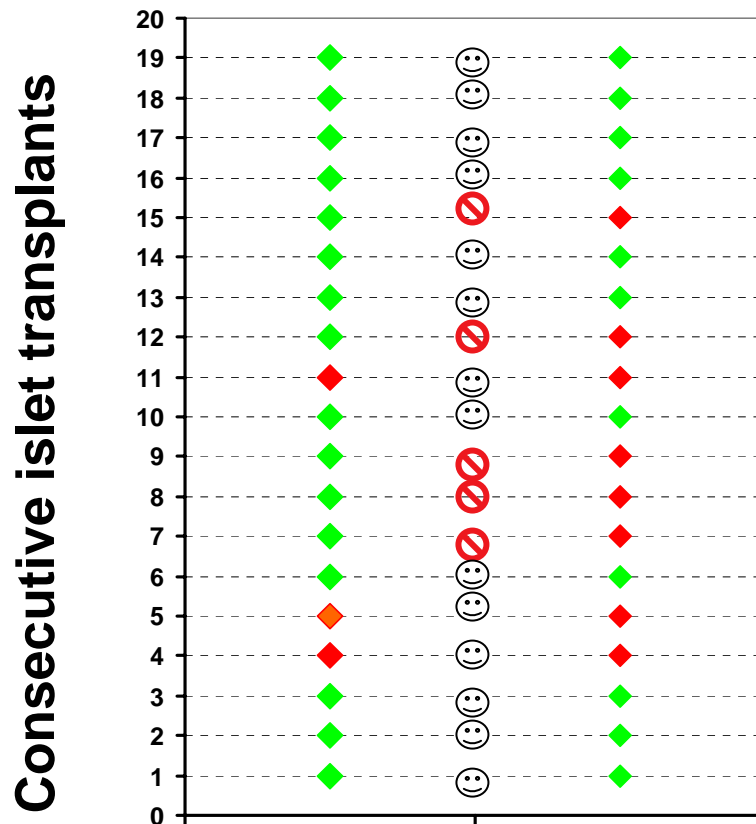


# 19 Single-Donor Islet Allografts

- 16 restored insulin independence
- 2 resulted in partial function
- 1 showed primary non-function

# Concordance of human and mouse recipients of human islet grafts from the same donor with insulin independence/euglycemia as

lout



- ◆ Insulin independence/euglycemia
- ◆ Insulin dependence/hyperglycemia
- ☺ Outcome concordant.
- ☹ Outcome discordant.

**Concordant in 74%**

(N=19)

**19 single-donor islet allografts**

- 16 restored insulin independence
- 2 resulted in partial function
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# Statistical Analysis of Bioassay Sensitivity

Based on the statistical analysis provided by the City of Hope ABCC, the mouse outcome is **100%** sensitive but only **68.8%** specific to the human outcome.

# **Conclusion**

**The nude mouse bioassay outcome is highly sensitive and relatively specific to the human transplantation outcome**