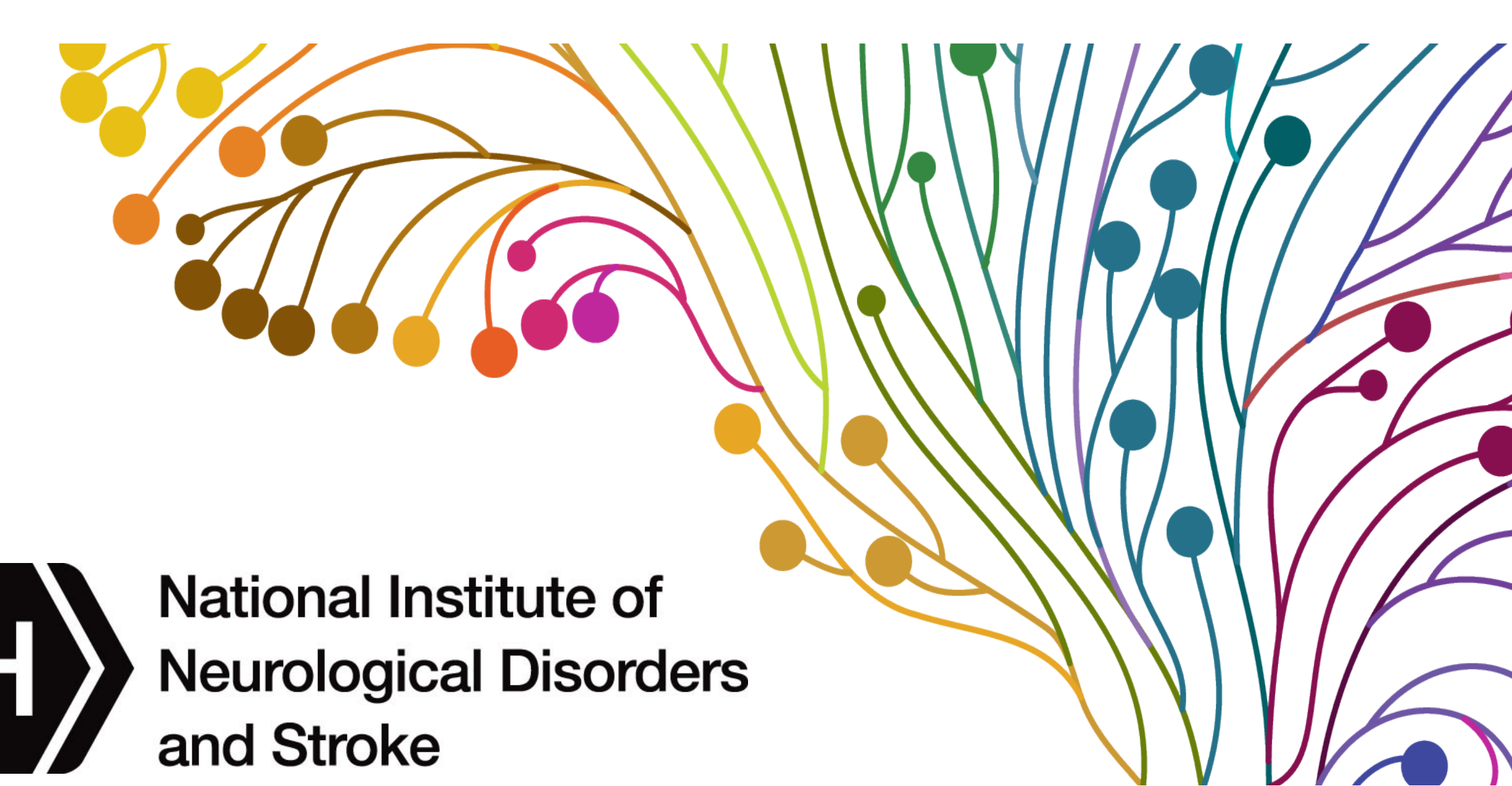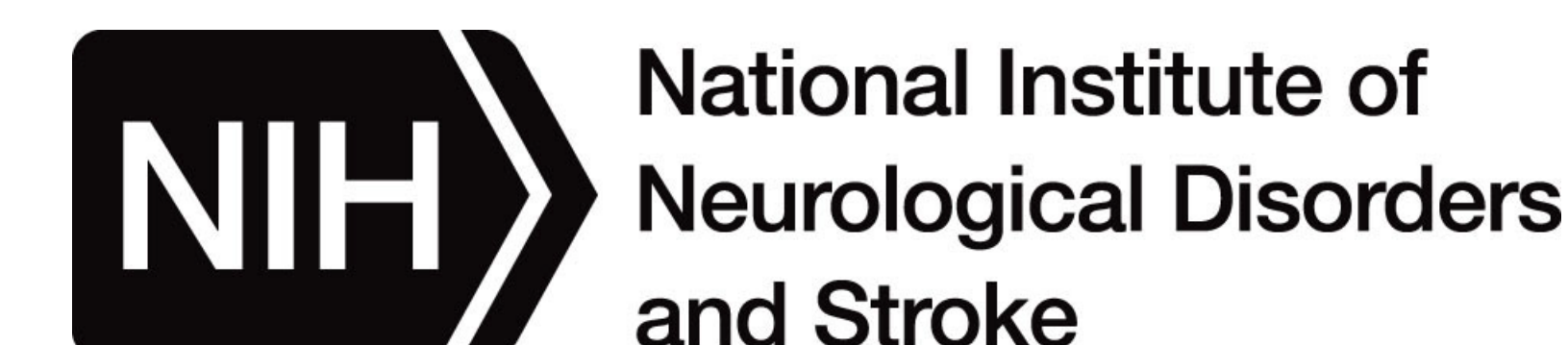# The NIH HEAL Initiative Preclinical Screening Platform for Pain (PSPP)

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## Background

The Preclinical Screening Platform for Pain (PSPP) was developed as part of the National Institutes of Health Helping to End Addiction Long-term Initiative, or NIH HEAL Initiative, with the goal of accelerating the discovery and development of non-opioid, non-addictive pain therapeutics.
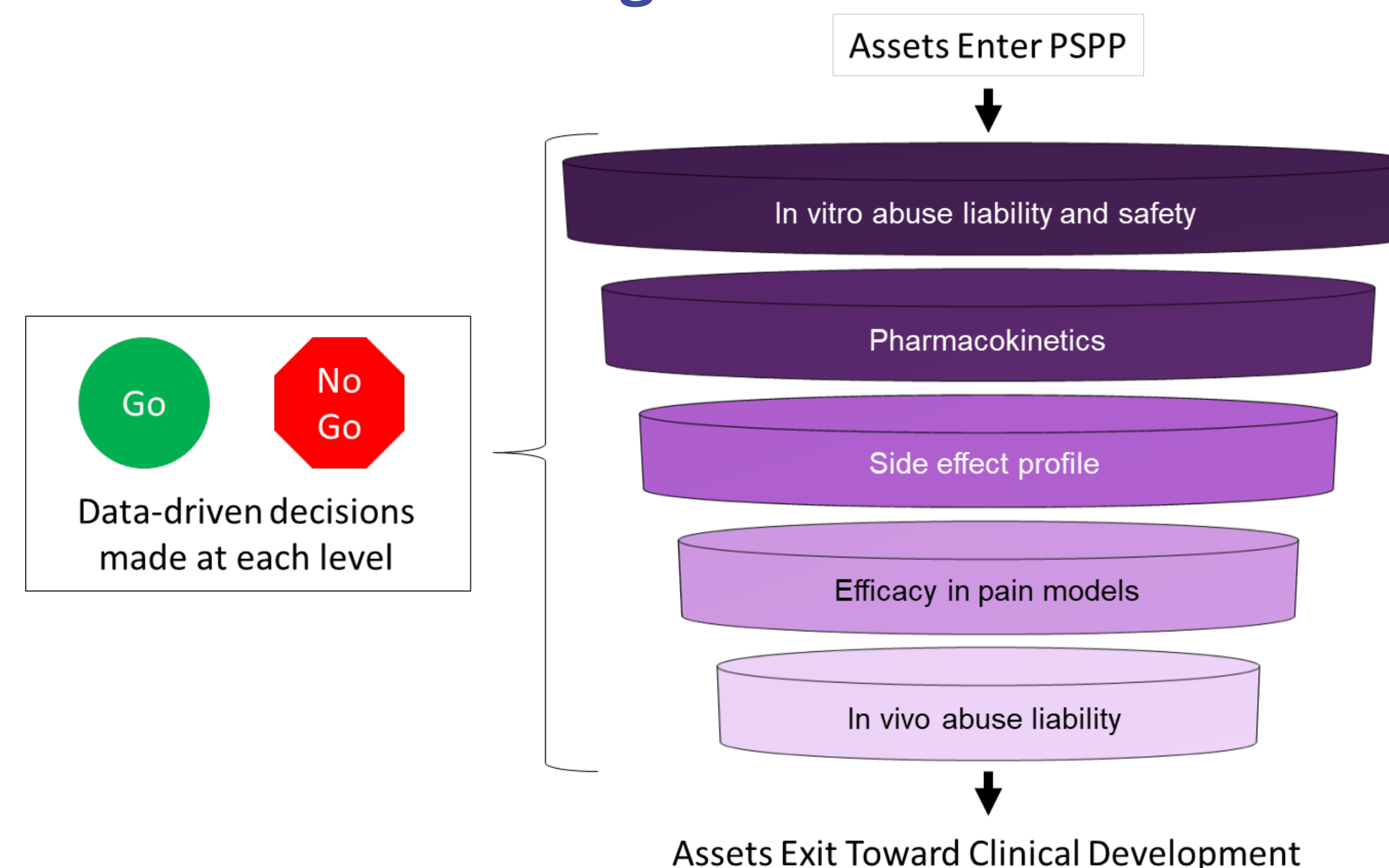
## PSPP Program Eligibility

➤ The PSPP program accepts assets from:
  • Academic institutions
  • Small businesses
  • Industry
  • Government

➤ PSPP is open to asset owners worldwide

➤ Asset owners can submit **small molecules**, **biologics**, **natural products**, or **devices** for evaluation

➤ All evaluation is provided at **no cost** to the asset owner

## Rigorous Study Design

☑ Models and endpoints were validated using positive and negative controls

☑ Experimenters are blinded to treatment

☑ Assessments are completed in male and female rats of a consistent strain and source

☑ Positive control and vehicle groups are included in all studies assessing efficacy

☑ Group sizes are determined by power analyses

☑ Inclusion criteria are applied for side effect profile, efficacy, and abuse liability studies

☑ Evoked and non-evoked endpoints are used to assess efficacy, and more than one endpoint is used per model

## PSPP Program Workflow



Assets Enter PSPP

In vitro abuse liability and safety

Pharmacokinetics

Side effect profile

Efficacy in pain models

In vivo abuse liability

Go / No Go — Data-driven decisions made at each level

Assets Exit Toward Clinical Development

**In vitro abuse/safety and in vivo pharmacokinetics:**
• In vitro abuse liability and off-target safety
• Protein binding
• Pharmacokinetics

**Side effect profile:**
• Modified Irwin functional observational battery
• Accelerated rotarod

**Efficacy in pain models:**
• Plantar incision
• L5/L6 spinal nerve ligation (SNL)
• Monosodium iodoacetate (MIA)
• Paclitaxel chemotherapy-induced peripheral neuropathy (CIPN)
• Oxaliplatin CIPN

**In vivo abuse liability:**
• Conditioned place preference (CPP)
• Intravenous self-administration (IVSA)

**Endpoints:**
Cold allodynia (acetone), dynamic weight bearing, guarding behavior, mechanical allodynia (von Frey filaments)

**Additional models and endpoints are being validated for potential inclusion in the PSPP workflow**

## PSPP is Accepting Assets for Evaluation!

➤ There are no set receipt dates for participation in PSPP. The PSPP program considers assets for acceptance continuously, on an ongoing basis.

➤ PSPP works with the asset owner to design all studies for evaluation of the asset and all QC'd data and reports are sent to the asset owner upon completion of the study.

➤ Under NINDS direction, preclinical evaluation of accepted assets is performed by contracted facilities in a blinded and confidential manner.

➤ Contact the PSPP Program Director for more information.

### PSPP Contacts

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## Learn More About PSPP

Visit https://pspp.ninds.nih.gov/ to learn more about models and endpoints used within the PSPP program and to view PSPP-generated data.