STRATEGIC PROPOSAL DEVELOPMENT SERVICE
# DESIGN PORTFOLIO

ABOUT OUR ILLUSTRATION SERVICE

Expected illustration times depend on existing workloads. If you need illustration work for upcoming grant submissions, please let our team know as early as possible (at least six weeks in advance is preferred.) You can request illustration services using **our intake form**.
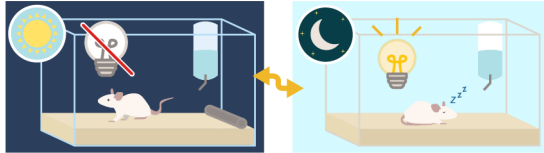
Chronic Sleep Fragmentation
Nocturnal mice are prevented from sleeping during the day
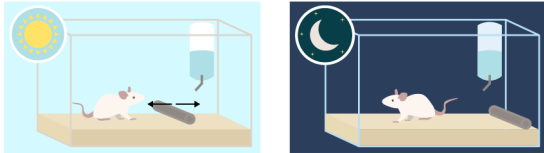
Mice exposed to 2 minute intervals of sleep disruption; followed by 12 hours without interruption

Frequent Night Shifts
Artificial light sources mix up the mouse's sense of day and night, and frequent changes of schedule simulate shift work

Mice exposed to 12 hours each of one week regular light and one week inverted light

NIH R01
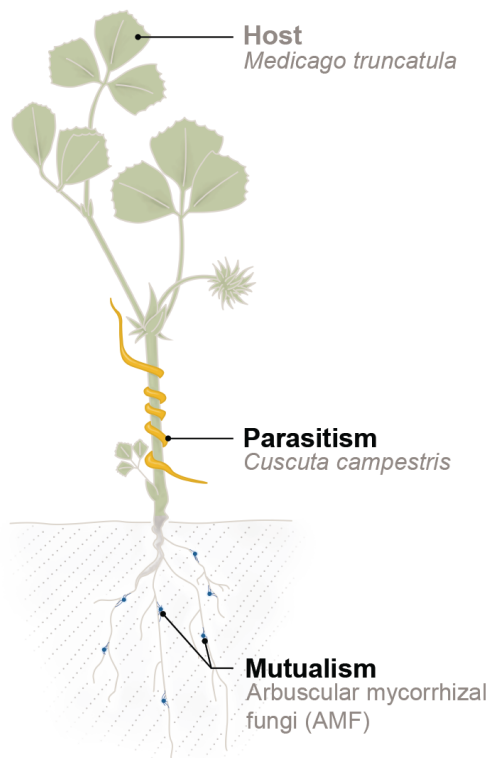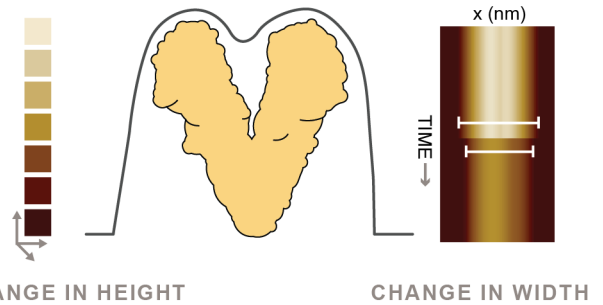**2024**

Parasitism and Mutualism During Drought Conditions

Host
Medicago truncatula

Parasitism
Cuscuta campestris

Mutualism
Arbuscular mycorrhizal fungi (AMF)

FIGURE 1. Schematic diagram of mutualism (host-mycorrhizal) and parasitism (host-*Cuscuta*) of this proposal.

USDA NIFA
2022

CHANGE IN HEIGHT   CHANGE IN WIDTH

x (nm)

TIME →

PUBLICATION
2023

Major Uses of Technology Identified by Caregivers

Smartphone
Social Participation
Video calls with friends and family members

eReader
Leisure/Activity
Promote mental stimulation & relaxation through eBooks and streaming services

Digital Calendar
Instrumental Activities of Daily Living
Digital alarm reminders to take medications

Internet Access
Healthcare
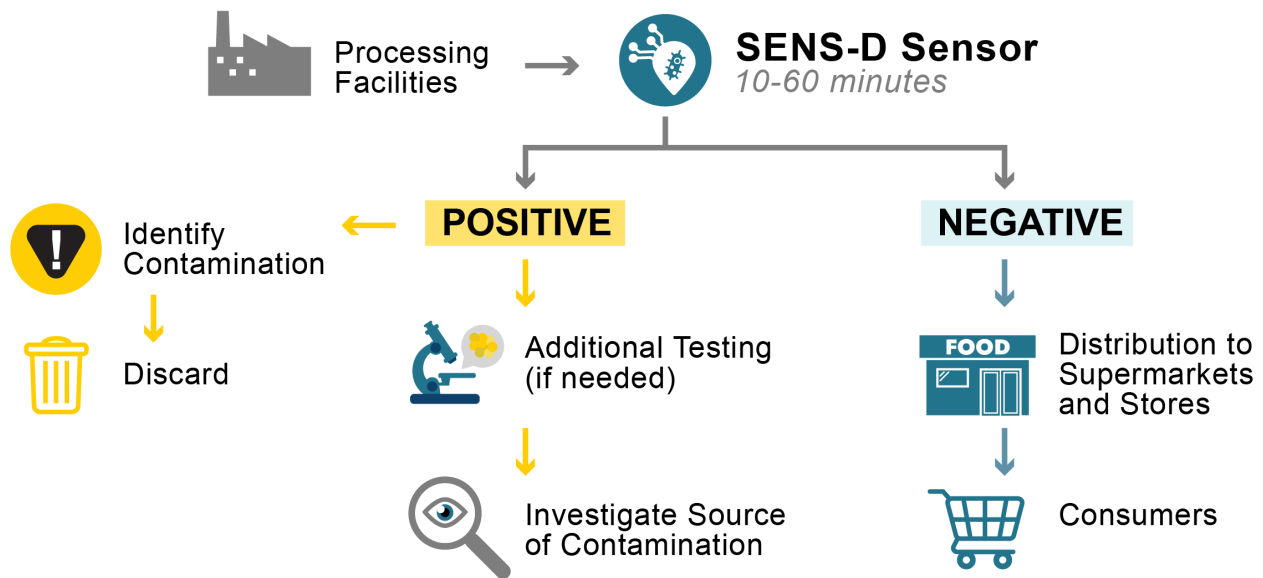Communication with providers

Smartwatch
Rest/Sleep
Track sleep patterns and raise concerns with doctor

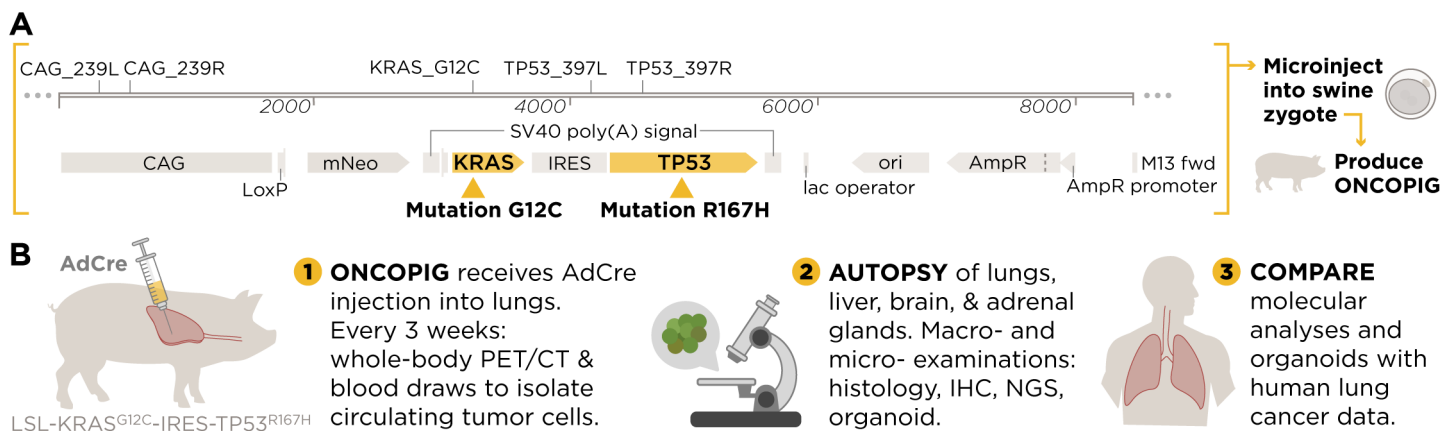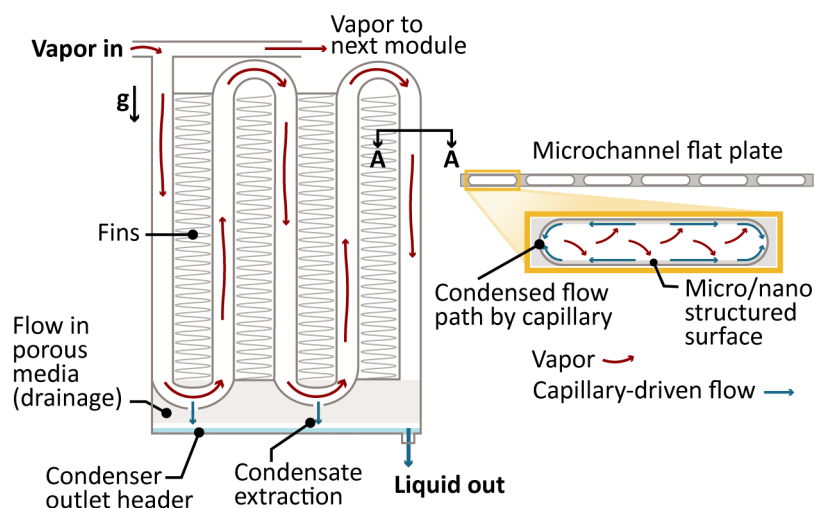**Patient Safety**
Precise location tracking and fall detection

NIA
2022

Reduces Testing Time from 24 Hours to 10-60 Minutes, Saving Money
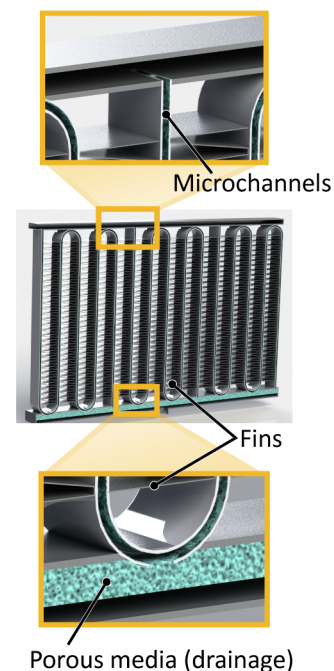
NSF Convergence Accelerator
2023

A

CAG_239L CAG_239R   KRAS_G12C   TP53_397L   TP53_397R

2000   4000   6000   8000

SV40 poly(A) signal

CAG   mNeo   KRAS   IRES   TP53   ori   AmpR   M13 fwd

LoxP   lac operator   AmpR promoter

Mutation G12C   Mutation R167H

Microinject
into swine
zygote

Produce
ONCOPIG

B

AdCre

LSL-KRAS^{G12C}-IRES-TP53^{R167H}

1 **ONCOPIG** receives AdCre injection into lungs. Every 3 weeks: whole-body PET/CT & blood draws to isolate circulating tumor cells.

2 **AUTOPSY** of lungs, liver, brain, & adrenal glands. Macro- and micro- examinations: histology, IHC, NGS, organoid.

3 **COMPARE** molecular analyses and organoids with human lung cancer data.

DOD CDMRP
2023

A

Vapor in

Vapor to next module

g

Microchannel flat plate

A A

Fins

Condensed flow path by capillary

Micro/nano structured surface

Flow in porous media (drainage)

Vapor

Capillary-driven flow

Condenser outlet header

Condensate extraction

Liquid out

B

Microchannels

Fins

Porous media (drainage)

DOE ExCHANGE
2023

NIH R01
2023