# OSC (Common Fund)

The Common Fund

**Concept Clearance:** New opportunity within existing Common Fund Program

## Targeted Needs for SPARC Program Goals

**Objective:** Address specific program needs, such as data and model interoperability and precise modulation and sensing of nerve and organ activity.

**Estimated Funds Available:** <$8M per year

**Award Project Period:** 2 years

**Council Action:** Vote on support of Targeted Needs for SPARC Program Goals

# Stimulating Peripheral Activity to Relieve Conditions (SPARC)

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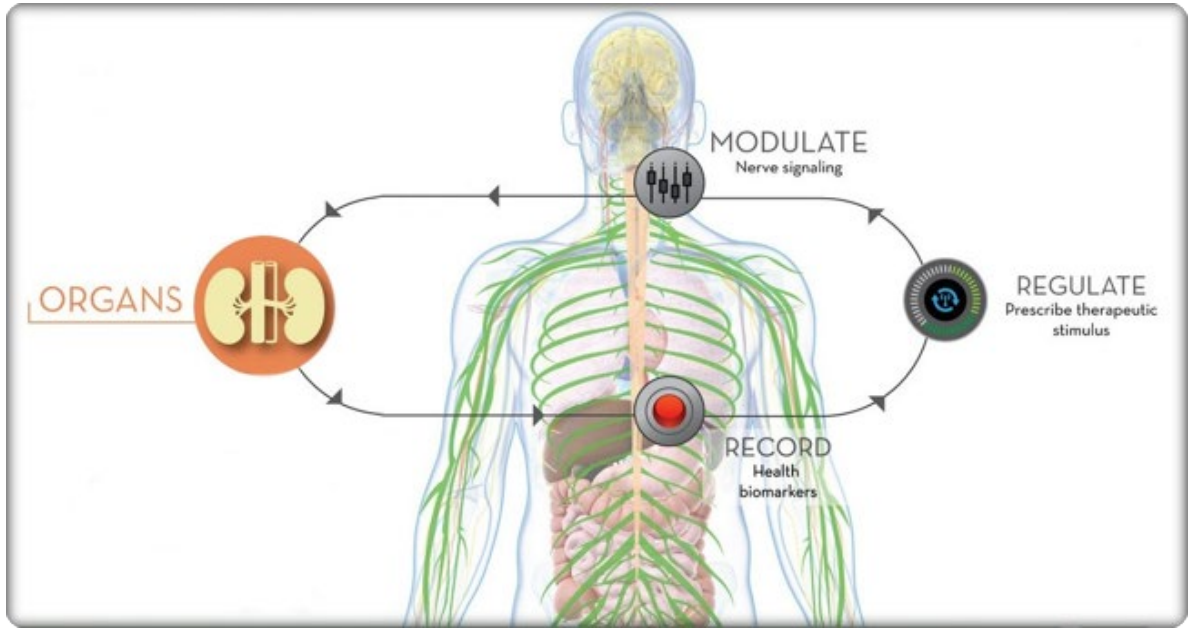


**Opportunity:** Neuromodulation of end-organ function holds promise in treating many diseases/conditions.

**Challenge:** The mechanisms of action for neuromodulation therapies remain poorly understood.

**SPARC program goals:**

- Capitalize on recent advances in technology to deliver detailed, integrated functional and anatomical neural circuit maps for organs.
- Provide the scientific foundation necessary to pilot new and improved neuromodulation devices and stimulation protocols that are more advanced and effective.

***Catalyze the development of next-generation bioelectronic medicines by providing access to high-value datasets, maps, and predictive simulations.***

# Stimulating Peripheral Activity to Relieve Conditions (SPARC)

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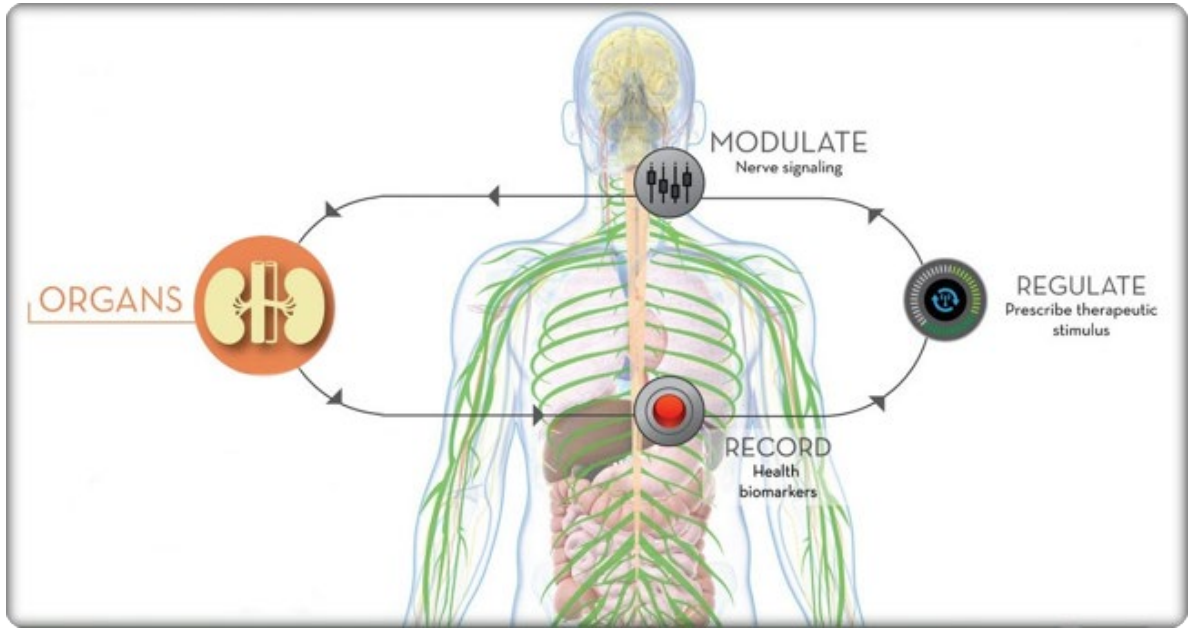


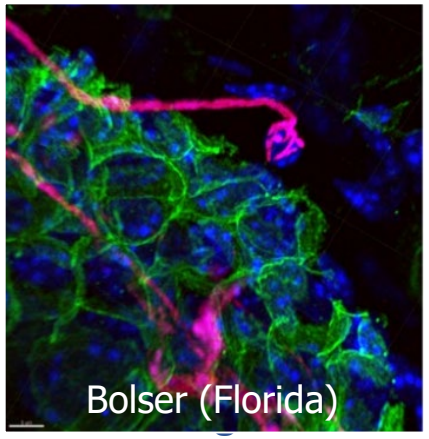

**MAPS**: High-resolution anatomical tracing, *in vivo* electrophysiology, live cell imaging, and transcriptomics for mapping peripheral neural networks

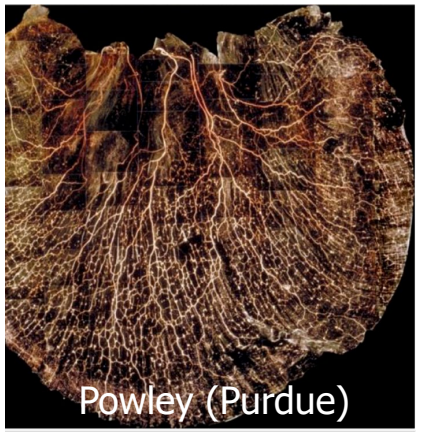
**TOOLS**: New probe and sensor technologies for mapping

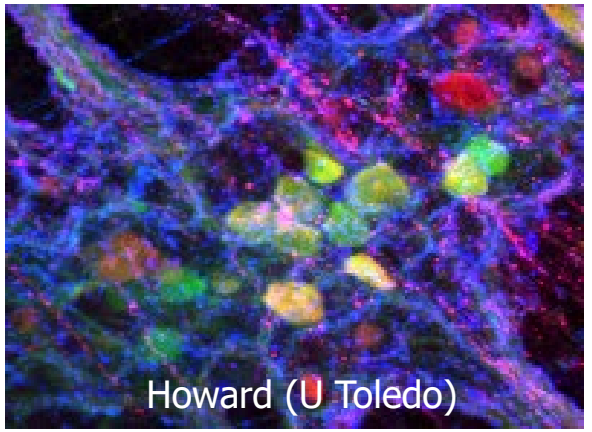
**TRANSLATION**: Partnerships to drive studies in humans

**DATA RESOURCES**: Integrative online hubs to synthesize and share map data and build predictive multiscale simulations


Shivkumar (UCLA)


Bolser (Florida)


Powley (Purdue)


Howard (U Toledo)


Keast (U Melbourne)

# Addressing Specific Program Needs

The Common Fund

Estimated budget $3M/year for 2 yrs

## Connecting Data

Strengthen interoperability of disparate data types

Seek new data sources

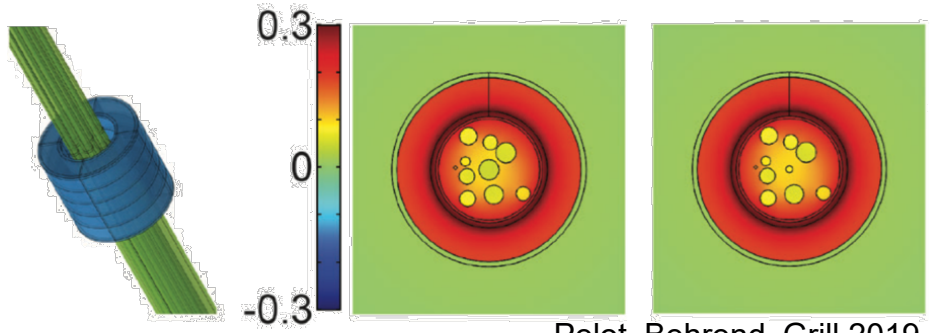
Support more modular simulations

Analysis tools in the cloud

Estimated budget $2M/year for 2 yrs

## More Precise Modulation and Sensing

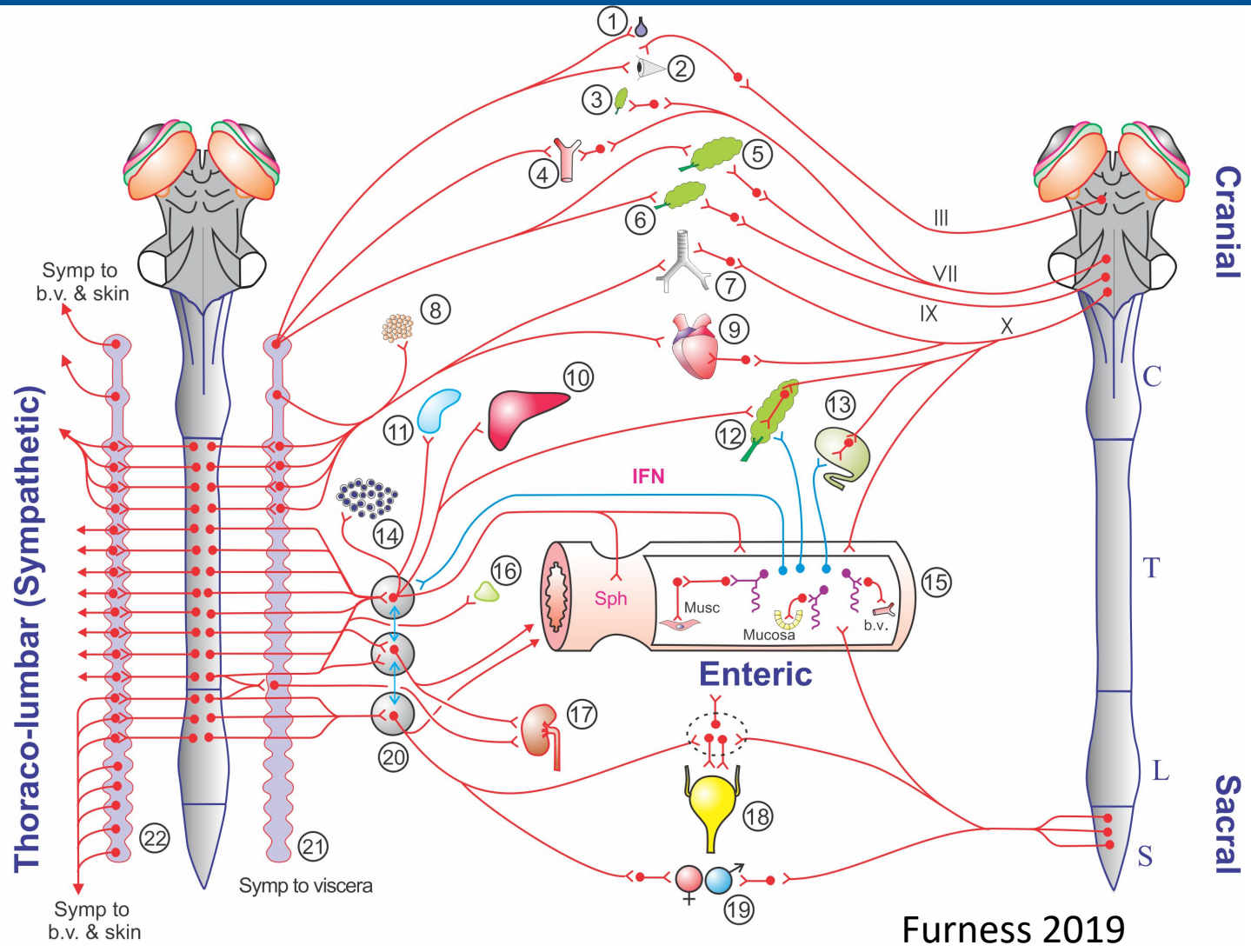
Selectively stimulate within nerve




Pelot, Behrend, Grill 2019

Identify actionable biomarkers from nerve and end organ

# Discussion


Symp to b.v. & skin
Thoraco-lumbar (Sympathetic)
Symp to b.v. & skin
Symp to viscera
IFN
Sph
Musc
Mucosa
b.v.
Enteric
Cranial
Sacral
C
T
L
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III
VII
IX
X
Furness 2019