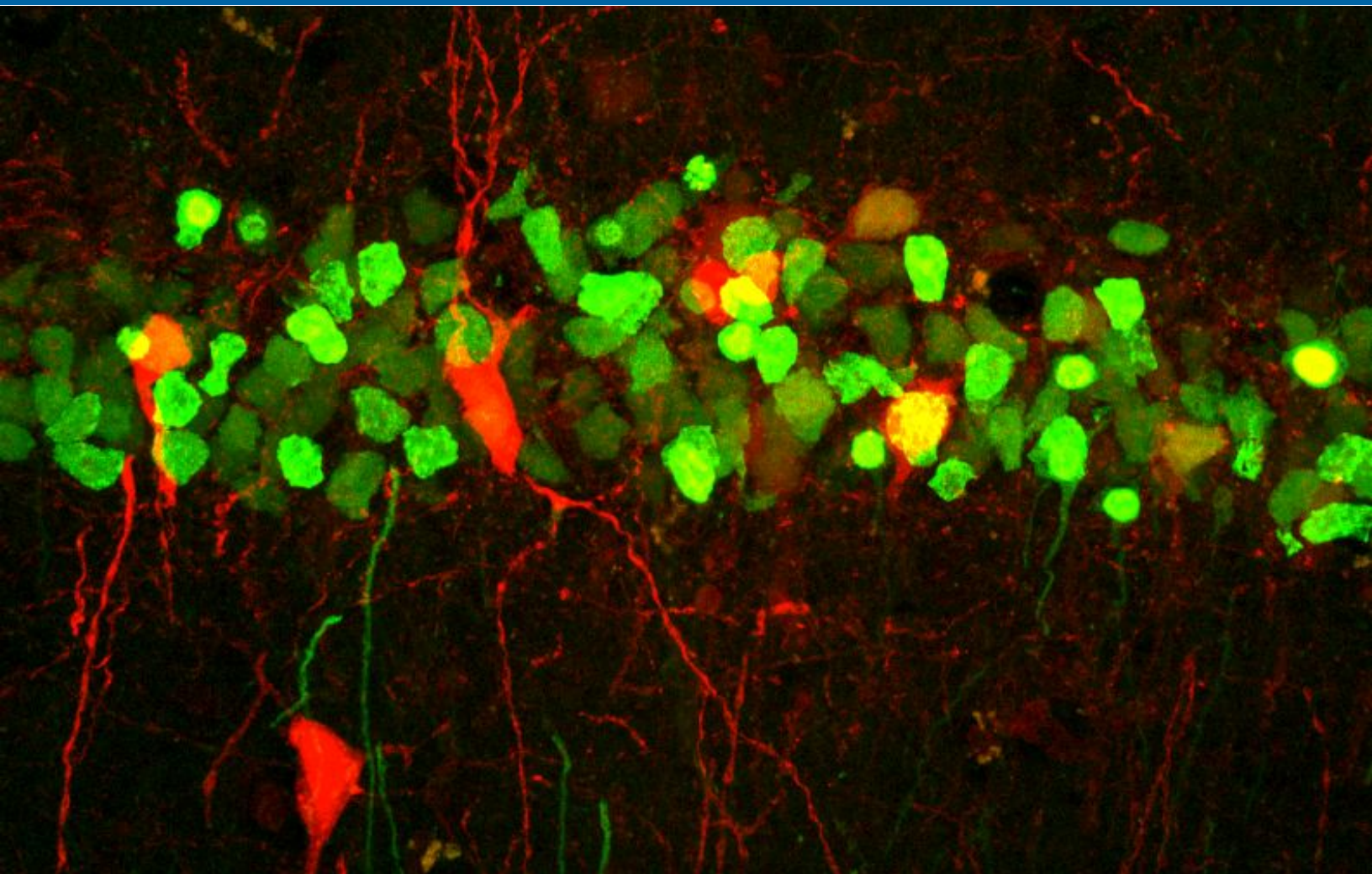


# Annual Newsletter

Issue #1 (Jan. 2024)



# Newsletter at a Glance

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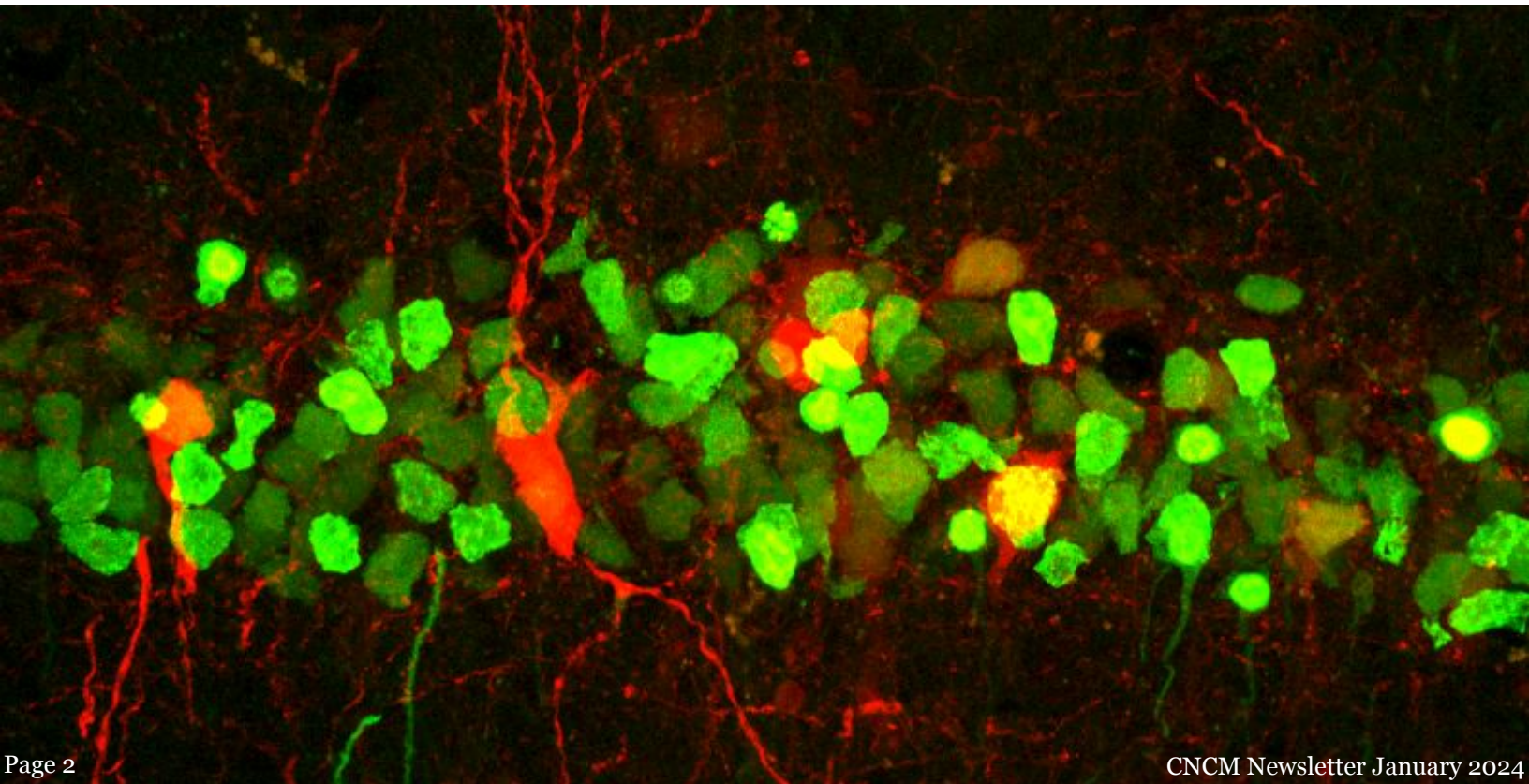
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## 2023 in Review

10 Grants, 26 Seminars, 1 Conference, 1 Symposium

### 10 Grants

Including the 10 team project grants below, our center has brought in over 25 million dollars this year!

Award Date	NIH Project Number
30-March-2023	<a href="#">5R01AG067153-04</a>
17-May-2023	<a href="#">1R01AG082127-01</a>
24-May-2023	<a href="#">5U01AG076791-02</a>
16-June-2023	<a href="#">5R24AG073198-03</a>
07-July-2023	<a href="#">1U24MH133236-01</a>
07-July-2023	<a href="#">5UM1MH130994-02</a>
21-August-2023	<a href="#">5R01FD007478-03</a>
28-August-2023	<a href="#">5U01DA052769-04</a>
06-December-2023	<a href="#">3U01DA052769-04S1</a>
08-December-2023	<a href="#">5R01NS121246-04</a>

### 26 Seminars

This year was our busiest year yet with 26 seminars featuring speakers from 18 unique institutions!

01/05/2023	C. Dirk Keene	U. of Washington
01/10/2023	David Olson	UCD
01/17/2023	Mehrdad Shamloo	Stanford
01/24/2023	Meng Zhang	Harvard
02/08/2023	Zhaoxia Yu	UCI
02/22/2023	Hermina Nedelescu	Scripps
02/28/2023	Sheng Zhong	UCSD
03/08/2023	X. William Yang	UCLA
03/21/2023	Michael Bruchas	U. of Washington
04/06/2023	Alex Kwan	Cornell
04/11/2023	Greg Horwitz	U. of Washington
04/18/2023	Daniel J Siegwart	UT, Southwestern
04/24/2023	Qing Nie	UCI

04/26/2023	Fangyuan Ding	UCI
05/03/2023	Yi Zuo	UCSC
05/10/2023	Wei Li	UCI
06/13/2023	Richard Bazinet	U. of Toronto
06/21/2023	Vikaas Sohal	UCSF
06/27/2023	Qiaobing Xu	Tufts University
07/18/2023	John Crawford	CHOC
07/25/2023	Weijian Zong	Norwegian U.
09/26/2023	Xiaoke Chen	Stanford
10/10/2023	Bogdan Bintu	UCSD
11/27/2023	Hongyi Li	Caltech
11/28/2023	Hyungbae Kwon	Johns Hopkins
12/05/2023	Andre Obenaus	UCI

## 2023 Conference (August 21-23, 2023)

In collaboration with the Cajal Club and the Allen Institute for Brain Science, this year we held our 3rd annual conference titled, ***“Structure, Function and Development of Neural Circuits.”*** With over 270 attendees and over 30 speakers, this was our biggest conference yet! Below you can find a group photo with all of the speakers that helped make our event a great success. The meeting report has been published in [Molecular Psychiatry](#).



Group photo taken outside the venue of the speakers for 2023

“This year’s conference brought together a distinguished roster of leading researchers in neuroscience and neuroanatomy. The speakers offered unique perspectives and in-depth insights on the theme of integrating the different facets of neural circuits. The discussions ranged from the latest technologies in neural mapping to the implications of circuit dynamics in health and disease.”

-Cajal Club [Meeting Report](#)

2023 Symposium (November 6, 2023)

**UCI** Center for Neural  
Circuit Mapping

2023 SYMPOSIUM

# New Viral Vectors for Neural Circuit Mapping

Monday, November 6, 2023

9:00 a.m. – 5:00 p.m. | Hybrid Event

**In-person:** Interdisciplinary Science and Engineering  
Building (ISEB), Irvine, CA & **Online** via Zoom

Co-Hosted by **UCI** Center for  
Virus Research



In collaboration with the UCI Center for Virus Research, we held our second symposium titled, “***New Viral Vectors for Neural Circuit Mapping***”. With over 100 combined attendees, this surpassed all expectations!

**Speakers Included:** Don Arnold (USC), Alexis Bouin (UCI), Edward Callaway (Salk Institute), Orkide Koyuncu (UCI), Tim Shay (Caltech), Wei Xu (UT Southwestern)

## A Look at the Year Ahead

17 Seminars and the 4th Annual CNCM Conference

### 17 Upcoming Seminars

We already have 17 seminars planned for 2024 and can guarantee more will be added as the year progresses. Check our [upcoming seminars](#) web page frequently for updates regarding our seminar schedule. If you have any suggestions for future seminar speakers please email Samson Lautzenheiser at [slautzen@uci.edu](mailto:slautzen@uci.edu).

01/16/2024	Donghui Zhu	Stony Brook U.
02/15/2024	Sandeep Robert Datta	Harvard
02/20/2024	Michelle Jones-London	NIH/NINDS
02/27/2024	Yimin Zou	UCSD
03/12/2024	Keri Martinowich	Johns Hopkins
03/19/2024	Anubhuti Goel	UCR
04/09/2024	Xiaoyin Chen	Allen Institute
04/16/2024	Weizhe Hong	UCLA
04/30/2024	Tian Lu	Harvard

05/14/2024	Yin Shen	UCSF
05/21/2024	Lindsay Schwarz	St. Jude
06/11/2024	Huizhong Tao	USC
09/24/2024	Wei-Chung Lee	Harvard
10/15/2024	Christina Kim	UCD
10/22/2024	Daniele Canzio	UCSF
11/12/2024	Mark Wagner	NIH/NINDS
11/19/2024	Li Gan	Cornell

### The 4th Annual CNCM Conference (August 19-21, 2024)

Titled, “*Brain Cell Types, Circuits and Disorders*,” our 2024 conference registration is now open! With over 20 confirmed speakers from across the country, we look forward to another great conference at the Beckman Center in Irvine. Please visit our [2024 conference page](#) for information regarding registration, schedule, abstract submission.



2024 CONFERENCE

# Brain Cell Types, Circuits and Disorders

August 19 – 21

Beckman Center of the National Academies of Science & Engineering

Register by May 19

## Confirmed Speakers:

Giorgio Ascoli (George Mason University)  
Xiaoning Bi (Western University)  
Jianhua Cang (University of Virginia)  
Tanya Daigle (Allen Institute)  
Hongwei Dong (UCLA)  
Joe Ecker (Salk Institute)  
Gordon Fishell (Harvard University)  
Mariano Gabitto (Allen Institute)  
Kalpna Gupta (UC Irvine)  
Michael Koob (University of Minnesota)  
Elly Nedivi (MIT)  
Hysell Oviedo (Washington University)  
Bing Ren (UCSD)  
Nicholas Seyfried (Emory University)  
Mikhail Shapiro (Caltech)  
Scott Sternson (UCSD)  
Larry Swanson (USC)

Lin Tian (UC Davis)  
Gianluca Tosini (Morehouse School of Medicine)  
Joshua Trachtenberg (UCLA)  
Wei Wei (University of Chicago)  
Xiangmin Xu (UC Irvine)  
X. William Yang (UCLA)

## Organizing / Advisory Committee:

Ed Callaway (Salk Institute)  
Liqun Luo (Stanford University)  
Bing Ren (UCSD)  
Xiangmin Xu (UC Irvine)  
Hongkui Zeng (Allen Institute)  
Xiaowei Zhuang (Harvard University)

For further event details and  
to register scan the QR code or visit  
[cncm.som.uci.edu/2024-conference/](https://cncm.som.uci.edu/2024-conference/)



## Looking to the future

2025 CONFERENCE

# The Changing Brain



Cajal Club



ALLEN INSTITUTE for  
BRAIN SCIENCE

Titled, “*The Changing Brain*”, our 2025 conference is going to be our most ambitious event yet. In just three years we are beginning to outgrow our home conference center and have made the decision to host our 2025 conference at the Irvine Marriott. This new venue will allow us to comfortably support over 400 guests with numerous other benefits including on site lodging at even better rates. Conference dates are August 18-20, 2025.

**Confirmed speakers:** Ishmail Abdus-Saboor (Columbia), Paola Arlotta (Harvard), Carlos Brody (Princeton), Beth Buffalo (U. of Washington), Edward Chang (UCSF), Anne Churchland (UCLA), Yang Dan (UC Berkeley), Catherine Dulac (Harvard), Guoping Feng (MIT), Zhigang He (Harvard), Hailan Hu (Zhejiang U., China), Josh Huang (Duke), Sten Linnarsson (Karolinska Institutet, Sweden), Guillermina Lopez-Bendito (UMH-CSIC, Spain), Liqun Luo (Stanford), Michelle Monje (Stanford), John Ngai (NIH), Tom Nowakowski (UCSF), Vanessa Ruta (Rockefeller), Bernardo Sabatini (Harvard), Karel Svoboda (Allen Institute), Li-Huei Tsai (MIT), Pierre Vanderhaeghen (Leuven Brain Inst., Belgium), Hongkui Zeng (Allen Institute), Larry Zipursky (UCLA)

Check the [2025 conference page](#) this March for more information including registration and abstract submissions.



## CNCM Viral Core

### New depository virus: Enhancer AAVs from The Broad



The CNCM viral core is collaborating with Dr. Gordon Fishell's team at the Broad Institute at Harvard University to produce and distribute cell-type specific enhancer AAV reagents as part of the [BRAIN Initiative Armamentarium project](#).

We will offer the following enhancer AAVs to gain genetic access to specific cell types in rodents, non-human primates and other vertebrate species. Achieving a tightly controlled cell-specific infection of viral neurotracers is critical for enabling targeted circuit manipulations to understand normal brain function. The use of gene regulatory elements for targeted gene expression is transforming brain circuitry studies.

Viruses are offered in 50µl aliquots, titer > 1 x 10<sup>13</sup> GC/ml. Choose from eGFP, ChR2, or GCaMP reporters, and AAV1, rAAV2-retro, or AAV-PHP.eB stereotypes. Visit our [enhancer AAV page](#) for more information.

Elements	Targets
E2	PV inhibitory neurons
E5	Layer 5 pyramidal tract neurons
E6	VIP inhibitory neurons
S9E10	SST inhibitory neurons

Elements	Targets
UG3D1484	SST subsets
UG3E1481	MGE derived interneurons
S9E2	Dr1/Dr2 neurons
S9E27	Cholinergic neurons

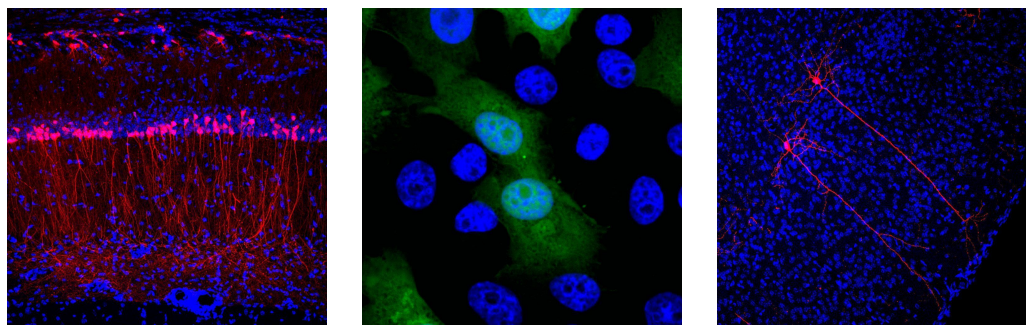
Our projects are supported by the following grants:

- 1) U24MH133236 UC Irvine Center for the production and distribution of cell-type-specific viral targeting reagents
- 2) UF1MH130701 Systematic identification of enhancers to target the breadth of excitatory and inhibitory neuronal cell types in the cerebral cortex

## New virus: Rabies Virus

Our new recombinant rabies Virus (RV) tools for multi-scale imaging express a range of improved fluorescent proteins. We have developed 20 new RV vectors for multi-scale and multi-modal neural circuit mapping tools. We have refined the virus to target specific neuronal subcellular locations of interest. These tools can also be used in EM and *in vivo* imaging.

We offer SAD-RV virus and EnvA pseudotyped virus as 10 $\mu$ l aliquots, titer  $>10^8$  PFU/mL alongside complementary AAV8s, 50 $\mu$ l aliquots, titer  $> 1 \times 10^{13}$  GC/ml. More information can be found on our [Rabies Virus page](#).



Alexis Bouin, Ginny Wu et al. New rabies viral resources for multi-scale neural circuit mapping, 28 September 2023, PREPRINT (now accepted in Molecular Psychiatry)

[\[https://doi.org/10.21203/rs.3.rs-3250124/v1\]](https://doi.org/10.21203/rs.3.rs-3250124/v1)

## New Equipment: QX200 ddPCR

We have newly acquired a Bio-Rad QX200 digital droplet PCR machine with automatic droplet generator. The automated pipeline will allow for improved and highly reproducible viral titer quantification.



## New Service: Testing & Training Services

We offer new testing & training services. These requests are reviewed case-by-case review. Please inquire via [cncm@uci.edu](mailto:cncm@uci.edu)

### ***In vivo* Virus Injection & Imaging**

- Great for test pilot experiments or lab lacking infrastructure
- Cost includes: animal housing, virus injection, perfusion, microtome sectioning and imaging.
- Must provide: animal, additional antibodies
- Must purchase virus from CNCM depository or custom AAV

### **Surgery and Perfusion Training**

- Training for labs considering setting up a new protocol
- Perfect for new trainees, junior scientists
- Surgery, virus injection, sacrifice and perfusion training

## Job Opportunities

Please contact [cncm@uci.edu](mailto:cncm@uci.edu) with your CV and cover letter.

### Cloning and AAV virus Junior Specialist

The CNCM Viral Core is seeking a full time specialist dedicated to cloning and virus purification. Specialist will perform job duties under the supervision of a senior staff scientist. Minimum requirements is bachelor degree, 2 years laboratory experience preferred.

### Postdoctoral Scholar for U24

We are seeking a postdoctoral scholar for our U24 grant. Incumbent will aid in development of AAVs and cell-type specific targets and reporters to improve the precision of genetically targeted specific circuit mapping in the CNS. Grant id: 1U24MH133236-01

## Call For Submissions

For our next newsletter, we would like to share the CNCM community achievements. If you were a recipient of an award or have a publication you want to share in this newsletter please reach out to [cncm@uci.edu](mailto:cncm@uci.edu) with more information and we will include it in our mid year newsletter later this year! For this next newsletter, we are looking for submissions that occurred on or after 10/01/2023.

## Acknowledgements

This issue of the CNCM newsletter was compiled and edited by:  
Samson Lautzenheiser, Michele Wu and Alexis Bouin