**1) Contact Information**

Stephen E.P. Smith, PhD

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Email: [seps@uw.edu](mailto:smith.stephen@mayo.edu)

**2) Personal Data**

Place of Birth: London, England

Citizenship: USA (naturalized) and United Kingdom

**3) Education**

1998-2002 BA, Cell and Molecular Biology, Occidental College, Los Angeles, CA

2002-2008 PhD, Biology, California Institute of Technology, Pasadena, CA

**4) Postgraduate training**

2008-2011 Harvard Medical School, Boston, MA

Research Fellow, Neurology, Beth Israel Deaconess Medical Center

2011-2015 Mayo Clinic College of Medicine, Rochester, MN

Research Fellow, Immunology

**5) Faculty Positions Held**

2015-2021 Assistant Professor, University of Washington School of Medicine, Department of

Pediatrics, (Division of Developmental Medicine) and Center for Integrative Brain

Research, Seattle Children’s Research Institute

2015-Present Research Affiliate, Center for Human Development and Disease (CHDD)

2016-Present Faculty, Graduate Program in Neuroscience

2021-Present Associate Professor, University of Washington School of Medicine, Department of

Pediatrics, (Division of Developmental Medicine) and Center for Integrative Brain

Research, Seattle Children’s Research Institute

**6) Hospital Positions Held**

N/A

**7) Honors**

1999 Organic Chemistry Award, Occidental College

2002 Phi Beta Kappa Honors Society

2013 Mayo Fellows Association Poster Award

2013 American Association of Immunologists Trainee Travel Award

2015 Huntington’s Disease Insights (HDI) “Insight of the Year in Imaging and Biomarkers”

2016 National Association for Research on Schizophrenia and Affective Disorders

(NARSAD) Young Investigator Award

2022 “Most Impactful Research Presented” at the Synchrony Meeting, Brain Research

Foundation.

**8) Board Certification**

None

**9) Current Licenses to Practice**

None

**10) Professional Organizations**

2006-Present Member, Society for Neuroscience

2013-2014 Member, American Association of Immunologists

2016-Present Member, International Society for Autism Research

**11) Teaching Responsibilities**

1. Medical students and students in other health professions. UW Graduate Program in Neuroscience Graduate Students Devin Wehle 2018-2024 , Emily Brown 2019-2020 (leave of absence) then 2023-; UW Graduate Students Liza Severs rotated in the lab in 2017-2018. UW SOM student Mason Stillman completed his MSRTP summer project in the lab in 2018. UW undergraduates Andrew Chara, Andrew Ko, Pearl Woo, Ryan Mendel, Karen Immendorf, Noah Tashbook, Elizabeht Theirl and Shreya Patel, Muna Yase and Carter Bass, Pearl Woo, Han Lin, Shreya Dev, Sarah Nemann have received credit for research conducted in my lab. Stanford undergraduate Kaleb Tsegay completed a URM Summer internship in 2019. Muna Yase and Max Ulibarri completed URM Summer internships in 2021, Vinny D’Onoforo in 2023 and Payton Stouppe in 2024.

TABLE 1: UW SOM courses taught

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course** | **Title** | **Credits** | **Years** | **Students** | **Responsibility** |
| MICROM 499A | Undergrad Lab Research | 1-5 | 2016-2017 | 2 | Individual research advising (100%) – 13 credits total |
| PEDS 499A | Undergrad Lab Research | 1-5 | 2016-2024 | 6 | Individual research advising (100%) – 35 credits total |
| MICROM 496B | Undergraduate Library Research | 2 | 2016 | 1 | Individual advising (100%) – 2 credits total |
| PBIO 508C | Physiology Lab | 3 | 2017 | 1 | Individual research advising (100%) |
| Neuro510 | Neuroscience Seminar Series | 0.5 | 2017 | ~20 | Presented 1 seminar |
| PEDS 513 | Scientific investigation in pediatric medicine | 2 | 2018- 2021 | ~10 | Present a seminar on lab’s research focus |
| Oral Biology 575 | Oral Biology Seminar Series | 1 | 2018 | ~20 | Presented 1 seminar on signal transduction |
| Path 558 | Integrative Omics | 1.5 | 2019-2024 | ~20 | Presented 1 seminar on Mass Spectrometry |

1. Pediatric residents:

None

1. Subspecialty fellows:

|  |  |  |
| --- | --- | --- |
| *Mentorship for Fellows (last 5 years)* | | |
| 2015-2017 | Alison Williams, PhD  *Role: Primary Research Mentor* | Neurobiology/Neuroscience |
| 2017-2021 | Jonathan Lautz, PhD  *Role: Primary Research Mentor* | Neurobiology/Neuroscience |
| 2018-2024 | Devin Wehle  *Role: Primary PhD Mentor* | UW Graduate Program in Neuroscience |
| 2018-2021 | Whitney Heavner, PhD  *Role: Primary Research Mentor* | Neurobiology/Neuroscience |
| 2019-2020  2023- | Emily Brown  *Role: Primary Research Mentor* | UW Graduate Program in Neuroscience |
| 2020-2021 | Katherine Carpenter, PhD  *Role: Primary Research Mentor* | CAR T cell signaling |
| 2021- | Vera Stamenkovich, PhD  *Role: Primary Research Mentor* | Neurobiology/Neuroscience |
| 2021-2022 | Victor Camberos, PhD  *Role: Primary Research Mentor* | Neurobiology/Neuroscience |
| 2023-2024 | Eric Bueter, PhD  *Role: Primary Research Mentor* | CAR T cell signaling |

**12) Editorial Responsibilities**

2023-Present Editor, Frontiers in Molecular Neuroscience

**13) Special National Responsibilities**

2016-2019 Abstract reviewer for the Annual Meeting of the International Society for

Autism Research (INSAR)

2019-2021 Member, INSAR programming committee

2023-Present NIH Peer Reviewer, ZRG1 BN-P(57) Cellular and Molecular Biology of Complex Brain Disorders (3 cycles)

2024 NIH Peer Reviewer, 2025/01 ZHD1 DSR-A (55) 2 Centers for Collaborative

Research in Fragile X and FMR1-Associated Conditions (P50)

**14) Special Local Responsibilities**

2016-Present Mary Gates Scholarship reviewer

2016-Present Thesis Committee Member: Phillip Silva (Neumeir lab); Rachel (YuChi) Chang

(Costa lab), Sara John (Yadev lab).

2017-2021 Admissions Committee, UW Graduate Program in Neuroscience

2018-2019 PhD Quality of Life Committee, Seattle Children’s Research Institute

2019-2020 Capital Equipment Selection Committee, Seattle Children’s Research

Institute

2021-2023 Director for Innovative Technologies, Center for Integrative Brain Research,

Seattle Children’s Research Institute

2021-2023 Chair, Faculty Search Committee, Center for Integrative Brain Research, Seattle

Children’s Research Institute

2023- Member, Behavior Suite planning committee

2024- Member, Microscopy Core Planning committee

**15) Research Funding**

**Current Support**

National Institute of Mental Health

R01 MH113545 (PI: Smith) 07/01/2017-11/30/2027 3 mos

$7,030,738 Total Cost for Entire Project Period (including Indirect Costs)

*Investigating the synaptic pathology of Autism*

National Cancer Institute

1 R01 CA240985 (PI: Smith) 04/01/2020-03/31/2025 2.5 mos

$3,168,260 Total Cost for Entire Project Period (including Indirect Costs)

$321,821-388,095 Annual Direct Costs

*Quantitative protein network profiling to improve CAR design and efficacy*

National Cancer Institute

R37 CA275954 (PI: Gust) 09/01/2023-08/31/2028 0.6 mos

$3,012,3300 Total Cost for Entire Project Period (including Indirect Costs)

Role: co-Investigator

*Endothelial-Leukocyte Adhesion in CAR T Cell Treatment Associated Neurotoxicity*

**Completed**

National Institute of Mental Health

1 R01 MH121487 (PI: Smith) 07/09/2020-04/30/2022\*\* 2.5 mos

$1,450,000 Total Cost for Entire Project Period (including Indirect Costs)

$357,126-388,095 Annual Direct Costs

*Subtyping the autisms using individualized protein network analysis*

*\*\*administratively cut to 18months upon funding, currently in NCE*

National Institute of Drug Abuse

R21 DA048632 (PI: Smith) 07/01/2019-06/30/2021 2.5 mos

$514,854 Total Cost for Entire Project Period (including Indirect Costs)

$150,000 (YR1)/$125,000(YR2) Annual Direct Costs

*Purification of cell-type specific synaptic material using virally-expressed tags*

National Institute of Neurological Disorders and Stroke

R01 NS031224 (PI: Welsh) 09/30/2015-6/30/2020 1.5 mos

$3,386,090 Total Cost for Entire Project Period (including Indirect Costs)

$351,072/yr Annual Direct Costs

*Central Rhythmogenesis and Behavior*

Seattle Children’s Research Institute Integration Hub

2020 COVID Award (PI:Smith) 06/01/2020 - 5/31/2021 0.0 mos

$20,000 Total Cost

*Repurposed drug screen for inhibiting SARS-COV-2 binding to ACE2*

Brotman Baty Institute

2019 Catalytic Collaborations granting program (PI: Yadev) 2/1/2020-1/21/2021 0.5 mos

$149,900 Total Cost for Entire Project Period (including Indirect Costs)

$50,000 for Smith Lab

*Unraveling mechanisms underlying brain overgrowth in 16p11.2CNV associated autism*

Institute of Translational Health Services @ UW

2020 COVID Pilot Award (PI: Smith) 5/1/2020-11/30/2020 0.0 mos

$2,500 Total Cost

*Bead-based detection of SARS-COV-2 Antibodies and binding to ACE2*

Brain and Behavior Research Foundation (NARSAD Young investigator Award)

25037 (PI: Smith) 01/15/2017-01/14/2019 0.0 mos

$70,000 Total Cost for Entire Project Period (including Indirect Costs)

$35,000/yr Annual Direct Costs

*Synaptic Homeostasis of the Homer1 Network in a Shank3 Model of Autism*

National Institute of Mental Health

R00 MH102244-04 (PI: Smith) 08/01/2015-07/31/2018 6.0 mos

$733,611 Total Cost for Entire Project Period (including Indirect Costs)

$126,784/yr Annual Direct Costs

*Protein Interaction Network Analysis to Test the Synaptic Hypothesis of Autism*

Mayo Clinic Development Office

Dana Center for Autism Research Award (PI: Smith) 7/1/2014-7/31/2015 0.0 mos

$40,000 Total Cost for Entire Project Period (including Indirect Costs)

$20,000/yr Annual Direct Costs

*“Preclinical Investigation of Mouse Models of Autism and Autism with Self-Injury Behavior”*

National Institute of Mental Health

F32 MH087085-01 (PI: Smith) 10/01/2009-10/01/2011 12.0 mos

$100,000 Total Cost for Entire Project Period (including Indirect Costs)

$50,000/yr Annual Direct Costs

*“Characterization of Autism Susceptibility Genes on Chromosome 15q11-13.”*

National Alliance for Autism Research

Pre-doctoral fellowship (PI: Patterson) 1/1/2007-6/1/2008 12.0 mos

$52,000 Total Cost for Entire Project Period (including Indirect Costs)

$26,000/yr Annual Direct Costs

*“The role of cytokines in mediating the effects of maternal immune activation on the fetal brain.”*

**16) Bibliography**

a) Manuscripts in Refereed Journals

1) **Smith SEP**, Li J, Garbett K, Mirnics K, Patterson PH. (2007) Maternal immune activation alters fetal brain development through interleukin-6. *J Neurosci* 27(40):10695-702. PMCID: PMC2387067

2) Shi L, **Smith SEP**, Malkova N, Tsu D, Patterson PH. (2009) Activation of the maternal immune system alters cerebellar development in the offspring. *Brain Behav Immun* 23(1):116-23. PMCID: PMC2614890

3) Zhou Y, Lee S, Jin Z, Wright M, **Smith SEP**, Anderson MP. (2009) Arrested maturation of excitatory synapses in autosomal dominant lateral temporal lobe epilepsy. *Nat Med* 15(10):1208-14. PMCID: PMC2759408

4) Ito HT, **Smith SEP**, Hsaio E, Patterson PH. (2010) Maternal immune activation alters nonspatial information processing in the hippocampus of the adult offspring. *Brain Behav Immun* 24(6):930-41. PMCID: PMC2897971

5) **Smith SEP**, Zhou YD, Zhang G, Jin Z, Stoppel DC, Anderson MP. (2011) Increased gene dosage of Ube3a results in autism traits and decreased glutamate synaptic transmission in mice. *Sci Transl Med* 3(103):103RA97. PMID: 21974935

6) **Smith SEP**, Xu L, Kasten M, Anderson MP. (2012) Mutant LGI1 inhibits seizure-induced trafficking of KV4.2 potassium channels. *J Neurochem* 120(4):611-21. PMCID: PMC3261618

7) **Smith SEP**, Elliott R, Anderson MP. (2012) Maternal immune activation causes increased thickness and increased cell density in the cortex of neonatal offspring. *J Neuroimmune Pharmacol* 7(3):529-32.PMCID: PMC3672058

8) **Smith SEP**, Bida AT, Davis TR, Sicotte H, Patterson SE, Gil D, Schrum AG. (2012) IP-FCM measures physiologic protein-protein interactions modulated by signal transduction and small-molecule drug inhibition. *PLoS ONE* 7(9): e45722. PMCID: PMC3448684

9) Neier S, **Smith SEP,** Davis T, Gil D, Schrum A. (2013) Toward T cell protein-protein interaction activity relevant to alopecia areata. *J Investig Dermatol Symp Proc* 2013 Dec; 16(1):S31-3. PMCID: PMC4109688

10) Bauman MD, Iosif A, **Smith SEP**, Bregere C, Amaral DG, Patterson PH. (2014) Activation of the maternal immune system during pregnancy alters behavioral development of rhesus monkey offspring. *Biol Psychiatry* Feb 15; 75(4):332-41. PMID: 24011823

11) **Smith SEP**, Neier S, Davis T, Pittelkow M, Gil D, Schrum A. (2014) Signaling protein complexes isolated from primary human skin-resident T cells can be analyzed by Multiplex IP-FCM. *Exp Dermatol* March 28; 23(4):272-3. PMCID: PMC4003868

12) Machado CJ, Whitaker A, **Smith SEP**, Patterson PH, Bauman MD. (2015) Maternal immune activation in nonhuman primates alters social attention in juvenile offspring. *Biol Psychiatry* May 1; 77(9):823-32. PMID: 25442006

13) Weir RK, Forghany R, **Smith SEP**, Patterson PH, McAllister AK, Schumann CM, Bauman MD. (2015) Preliminary evidence of neuropathology in nonhuman primates prenatally exposed to maternal immune activation. *Brain Behav Immun* 48:139-46. PMID: 25816799

14) Southwell AL\*\*, **Smith SEP\*\***, Davis TR, Caron NS, Villanueva EB, Xie Y, Collins JA, Li Ye M, Sturrock A1, Leavitt BR, Schrum AG, Hayden MR. (2015) Ultrasensitive measurement of huntingtin protein in cerebrospinal fluid demonstrates increase with Huntington disease stage and decrease following brain huntingtin suppression. *Sci Rep* 5:12166. doi: 10.1038/srep12166. \*\*Co-first and co-corresponding authorship

15) **Smith SEP,** Maus RLG, Davis TR, Sundberg JP, Gil D and Schrum AG. (2016) Maternal IL-6 can cause T cell-mediated juvenile alopecia by non-scarring follicular dystrophy in mice. *Exp Derm* 25(3):223-8. DOI: 10.1111/exd.12914

16) **Smith SEP**, Neier SC, Reed BK, Davis TR, Sinnwell JP, Eckel-Passow JE, Sciallis GF, Wieland CN, Torgerson RR, Gil D, Neuhauser C, Schrum AG. (2016) Multiplex matrix network analysis of protein complexes in the human TCR signalosome. *Sci Signal* 9(439):rs7. PMID: 27485017

17) Lautz JD, Brown EA, VanSchoiack AAW, **Smith SEP**. (2018) Synaptic activity induces input-specific rearrangements in a targeted synaptic protein interaction network. *J Neurochem* 146: 540-559. PMID: 29804286

18) Brown, EA, Lautz JD, Davis TR, Gniffke EP, VanSchoiack AAW, Neier SC, Tashbook N, Nicolini C, Fahnestock M, Schrum AG, **Smith SEP**. (2018) Clustering the autisms using glutamate synapse protein interaction networks from cortical and hippocampal tissue of seven animal models. *Mol Autism* 9:48. PMID: 30237867

19) Stratiievska A, Nelson S, Senning EN, Lautz JD, **Smith SEP**, Gordon SE. (2018) Reciprocal regulation among TRPV1 channels and phosphoinositide 3-kinase in response to nerve growth factor. *eLife* 7:e38869. PMID: 30560783

21) Li F, **Smith SEP**, Kim W. (2018) VIA-QMI: A visualized data analytic tool for Quantitative Multiplex Co-Immunoprecipitation (QMI) Platform. *IEEE BIBM 2018 Workshop Papers*. November 2018, DOI: 10.1109/BIBM.2018.8621312

21) Neier SC\*\*, Wilton KM\*\*, Ferrer A\*\*, **Smith SEP\*\***, Kelcher AMH, Davis TR, Stiles RJ, Chen Z, McCluskey J, Burrows SR, Rossjohn J, Hebrink DM, Carmona EM, Limper AH, Kappes DJ, Wettstein PJ, Johnson AJ, Daniels MA, Neuhauser C, Gil D, and Schrum AG. (2019) The proximal αβ TCR signalosome instructs thymic selection through a quantitative protein interaction network. *Science Immunol* 4(29):eaal2201, 15 February 2019. \*\*co-co-co-first authorship. PMID: 30770409

22) Lautz JD, Gniffke EP, Brown EA, Immendorf KB, Mendel RD, **Smith SEP.** (2019). Activity-dependent changes in synaptic protein complex composition are consistent in different detergents despite differential solubility. *Sci Rep* 9:10890. doi:10.1038/s41598-019-46690-y. PMID: 31350430

23) Brown EA, Neier SC, Neuhauser C, Schrum AG, **Smith SEP.** (2019). Quantification of Protein Interaction Network Dynamics using Multiplexed Co-Immunoprecipitation. *J Vis Exp* (150): e60029. doi: 10.3791/60029 PMID: 31498315

24) Heavner WE and **SEP Smith**. (2020) Resolving the Synaptic vs. Developmental Dichotomy among Autism Risk Genes. *Trends in Neuroscience,* Apr;43(4):227-241. doi: 10.1016/j.tins.2020.01.009. PMID: 32209454

25) Gniffke EP, Harrington WE, Dambrauskas N, Jiang Y, Trakhimets O, VigdorovichV, Frenkel L, Sather DN, **Smith SEP** (2020) Plasma from recovered COVID19 subjects inhibits spike protein binding to ACE2 in a microsphere-based inhibition assay. Journal of Infectious Disease. 222(12):1965–1973. doi:10.1093/infdis/jiaa508 PMID:32798222

26) Trujillo C, Rice ES, Schaefer NK, Chaim IA, Wheeler EC, Madrigal AA, Buchanan J, Preissl S, Wang A, Negraes PD, Szeto R, Herai RH, Huseynov A, Ferraz MSA, Borges FS, Kihara AH, Byrne A, Marin M, Vollmers C, Brooks AN, Lautz JD, Semendeferi K, Shapiro B, Yeo GW, **Smith SEP**, Green RE, and Muotri AR (2021) Reintroduction of the archaic variant of NOVA1 in cortical organoids alters neurodevelopment. *Science*. Feb 12;371(6530):eaax2537. doi: 10.1126/science.aax2537. PMID: 33574182

27) Caron N, Banos R, Yanick C, Aly A, Byrne L, Smith E, Xie Y, **Smith SEP**, Potluri N, Black HF, Casal L, Ko S, Cheung D, Kim H, Seong IS, Wild E, Song J, Hayden M, Southwell A (2021) Mutant huntingtin is cleared from the brain via active mechanisms in Huntington disease. *Journal of Neuroscience.*  27;41(4):780-796. doi: 10.1523/JNEUROSCI.1865-20.2020. PMID: 33310753

28) Negraes P, Trujillo C, Yu N, Wu W, Yao H, Liang N, Lautz J, Kwok E, McClatchy D, Diedrich J, Bartolome S, Herai R, **Smith SEP**, Haddad G, Yates J, Muotri AR (2021) Altered network and rescue of human neurons derived from individuals with early-onset genetic epilepsy. *Molecular Psychiatry.* 2021 Apr 22. doi: 10.1038/s41380-021-01104-2. PMID: 33888873

29) Heavner, WE, Lautz JD, Speed HE, Gniffke EP, Immendorf KB, Welsh JP, Baertsch NA, and **Smith SEP**. (2021) Remodeling of the Homer-Shank Interactome Mediates Homeostatic Plasticity. *Science Signaling* 14, eabd7325. PMID:32209454

30) Tsegay KB, Adeyemi CM, Gniffke EP, Sather DN, Walker JK and **Smith SEP** (2021) A Repurposed Drug Screen Identifies Compounds That Inhibit the Binding of the COVID-19 Spike Protein to ACE2. *Front. Pharmacol*. 12:685308. doi:10.3389/fphar.2021.685308 PMID:33851160

31) Lautz JD, Tsegay KB, Zhu Z, Gniffke EP, Welsh JP, **Smith SEP**. (2021) Synaptic signaling networks encode experience by assuming stimulus-specific and brain-region-specific states. *Cell Reports* 37:9 doi:10.1016/j.celrep.2021.110076. PMID: 34852231

32) Roy A, Han VZ, Bard AM, Wehle DT, **Smith SEP**, Ramirez JM, Kalume F, Millen KJ. (2021) Non-synaptic Cell-Autonomous Mechanisms Underlie Neuronal Hyperactivity in a Genetic Model of PIK3CA-Driven Intractable Epilepsy. *Frontiers in Molecular Neuroscience* 14:273 DOI: 10.3389/fnmol.2021.772847 PMID: 34899181

33) Stillman M, Lautz JD, Johnson RS, MacCoss MJ, **Smith SEP**. (2022) Activity dependent dissociation of the Homer1 interactome. *Scientific Reports* 12, 3207*.* DOI: 10.1038/s41598-022-07179-3 PMID: 35217690

34) Wehle, DT, Sulc J, Mirzaa G, **Smith SEP**. (2022) Protein interaction network analysis of mTOR signaling reveals modular organization. *J. Biol. Chem* 299:11,105271. DOI: <https://doi.org/10.1016/j.jbc.2023.105271> PMID: 37741456

35) Stamenkovic V, Lautz JD, Harsh FM, **Smith SEP** (2024) SRC family kinase inhibition rescues molecular and behavioral phenotypes, but not protein interaction network dynamics, in a mouse model of Fragile X syndrome. *Molecular Psychiatry*, 2024 May;29(5):1392-1405. PMID: 38297084

36) Ritmeester-Loy SA, Lautz J Zhang-Wong Y, Gustafson J, Wilson A, Lin C, Gafken PR, Jensen MC, Orentas R, **Smith SEP**. (2024) State-dependent protein-protein interactions mediating 4-1BB CAR signaling. *Science Signaling*, 13 Feb 2024

b) Book Chapters

1) Patterson PH, Xu W, **Smith** **SEP** and Deverman BE. (2007) Maternal immune activation, cytokines and autism. In "Autism: Current Theories and Evidence", Zimmerman AW (ed), Humana Press, Totowa, NJ.

2) **Smith SEP**, Patterson PH. (2008) Immune challenge, neurodevelopment and behavior. In “The Neuroimmunological Basis of Behavior and Mental Disorders”, Siegel A and Zalcman SS (eds), Springer, Norwell, MA.

3) **Smith SEP**, Hsiao E and Patterson PH. (2010) Activation of the Maternal Immune System as a Risk Factor for Neuropsychiatric Disorders. In “Maternal Influences on Fetal Neurodevelopment”, Zimmerman AW and Connors SL (eds), Springer, Norwell, MA.

c) Published Books, Videos, Software, ect.

None

d) Other Publications

None

e) Manuscripts Submitted

1) Lautz J, Zhu Z, Haley E. Speed HE, Smith SEP, Welsh JP. (2021) Shank3 mutations impair electrical synapse scaffolding and transmission in mouse brain. BioRxiv <https://doi.org/10.1101/2021.03.25.437056>

f) Abstracts (for the last 5 years only)

**Symposium Presentations**

1) Smith SEP (2020) Gene and Protein Networks in Autism and Schizophrenia. Winter Conference on Brain Research, Big Sky, MO. Session Chair and Presenter: S Smith. Jan 25-30, 2020

2) Smith SEP (2021) Direct Measurement of activity-dependent protein interaction network states demonstrates mechanisms by which cells encode information. Cold Spring Harbor Network Biology Meeting, Online. Presenter: S Smith, March 17th, 2021

3) Smith SEP (2022) Autism disrupts synaptic signal transduction networks mediating homeostatic scaling. Winter Conference on Brain Research, Snowmass, CO. Session Chair and Presenter: S Smith. Jan 30-Feb 4, 2022

4) Wehle DT and Smith SEP (2022) mTOR signal transduction network is disrupted during homeostatic plasticity in Shank3KO mice. Gordon Conference on Autism and Fragile X, Ill Ciocco, Italy. Presenter: D Wehle. May 15-20, 2022.

5) Smith SEP (2023) Identification of novel drug targets through the analysis of protein interaction network dysfunction. Synchrony Meeting, Pleasenton, Ca. Presenter: S Smith. Dec 2-4 2023

\*Winner, Most Impactful Research presented at the conference.

6) Smith SEP (2023) mTOR signaling in Autism Spectrum Disorders. Winter Conference on Brain Research, Snowbird, UT. Session Chair and Presenter: S Smith. Jan 21-25, 2023

7) Smith SEP (2023) Autism-linked genes perturb dynamic protein interaction networks at the glutamate synapse. First Annual IHDD Research Day, Seattle, WA. Presenter: S Smith, June 15th 2023.

8) Smith SEP (2024) SRC Family Kinase Inhibition Rescues Molecular and Behavioral Phenotypes, but Not Protein Interaction Network Dynamics, in a Mouse Model of Fragile X Syndrome. Winter Conference on Brain Research, Breckenridge, CO. Presenter: S Smith. Jan 27-Feb1, 2024.

**Poster Presentations**

1) **Smith SEP,** Schrum AG. (2018) Quantitative Multiplex co-Immunoprecipitation of the T cell Receptor Signalosome: Translation to the CAR T cell system. Keystone Meeting on Emerging Cellular Therapies: T Cells and Beyond. Presenter: S Smith. Feb 11-15, 2018

2) Lautz J, Brown E, **Smith SEP**. (2018) Quantitative Multiplex co-Immunoprecipitation reveals basic principals of glutamate signaling in cultured cortical neurons. Winter Quantitative Biology Meeting, Maui, HI. Presenter: S Smith. Feb 22-25, 2018

3) **Smith SEP.** (2018) An Autism-Associated Signaling Network Differentiates Glutamate Receptor Inputs at Cortical Glutamatergic Synapses. International meeting for Autism Research, Rotterdam, Netherlands. Presenter: S Smith. May 9-12, 2018

4) Lautz JD, Brown EA, Williams AA, **Smith SEP.** (2018) Synaptically localized autism-linked gene products constitute an activity-dependent signalosome. Gordon Research Conference of Convergence in Autism and Fragile X, Tuscany, Italy. Presenter: S Smith. June 10-15, 2018

5) Lautz JD, Brown EA, Gniffke E, **Smith SEP.** (2018) Multiprotein complexes containing synapse-associated proteins are differentially sensitive to lysis buffer detergent. Society for Neuroscience Annual Meeting, San Diego, CA. Presenter: S Smith. November 3-7, 2018

6) Lautz JD, **Smith SEP.** (2019) Synaptic protein interaction networks states following in vitro stimulation with receptor agonists or chemical LTP/LTD. Gordon Research Conference on Excitatory Synapses and Brain Function, Manchester, NH. Presenter: S Smith. June 9-14, 2019

7) Bjelajac J, Wilson A, Gustafson J, Matthaei J, Jensen M, **Smith SEP.** (2020) Comparing signal transduction downstream of TCR vs. CAR engagement. Keystone meeting on Emerging Cellular Therapies: Cancer and Beyond, Banff, Canada. Presenter: S Smith. Feb 8-12, 2020.

8) Ritmeester-Loy S and Smith SEP (2022). Dynamic protein-protein interactions engaged by 4-1BB CARs. Keystone meeting on Emerging Cellular Therapies: Cancer and Beyond, Keystone, CO. Presenter: S Ritmeester-Loy. April 27-May 1, 2022.

9) Heavner W, Lautz J and Smith SEP (2022) Synaptic signaling networks are disrupted in mouse models of FragileX and autism. Gordon Conference on Autism and Fragile X, Ill Ciocco, Italy. Presenter: D Wehle. May 15-20, 2022.

10) Ritmeester-Loy S and Smith SEP (2023) State-dependent protein-protein interactions mediating 4-1BB CAR signaling. Keystone meeting on Emerging Cellular Therapies at the Forefront of Cancer Immunotherapy; Banff, AB, Canada. Jan 29- Feb 2, 2023.

**17) Other**

Invited lectures

Local

4/29/16 Invited Speaker, “Clustering the Autisms using synaptic protein interaction networks”, The CHDD Biology of Autism Collaborative Research Area (CRA) Special Event, Seattle, WA

8/4/16 Grand Rounds, “Autism and the Molecular Biology of the Social Brain”, UW Dept of Pediatrics, Seattle, WA

9/26/16 Invited Speaker, “Modeling an Autism-linked intracellular signal transduction network”, 2016 UW Neuroscience Retreat, Seattle, WA

12/4/16 Grand Rounds, “Autism as a Signalopathy”, Seattle Children’s Hospital Autism Center, Seattle, WA

10/9/17 Invited Speaker, “Synaptic Signal Transduction and Autism”, 2017-2018 Neuroscience Seminar Series: Neuro 510, Seattle, WA

10/15/18 Invited Speaker, “A Protein Network Approach to Modeling Complex Biological Processes”, 2018 Oral Biology Seminar Series, Seattle, WA

11/29/18 Invited Speaker, “Subtyping the Autisms using Protein Networks at the Glutamate Synapse”. Science Insights at the Institute series, Seattle Children’s Research Institute, Seattle, WA

8/8/19 Invited Speaker, “Clustering the Autisms: Can iPS cells provide biologically relevant material for a bioassay?”. Stem Cell Interest Group, Institute for Stem Cell and Regenerative Medicine (ISCRM), University of Washington, Seattle, WA

1/28/21 Grand Rounds, “Progress towards molecular subtyping of autism using patient-derived neurons”, Seattle Children’s Hospital Autism Center, Seattle, WA

3/17/22 Inter-center Discovery Lunch, “Drugging the mTOR pathway: Insights from protein interaction networks”. Seattle Children’s Research Institute, Seattle, WA

1/18/23 Inter-center Discovery Lunch, “State-dependent protein-protein interactions mediating 4-1BB CAR signaling”. Seattle Children’s Research Institute, Seattle, WA

10/14/24 UW Graduate Program in Neuroscience Seminar Series, "Protein interaction networks mediating synaptic plasticity". University of Washington, Seattle, WA

10/25/24 CIBR Retreat 2024, "Dissociating phosphorylation and mTOR protiein interaction networks in the brain". Sleeping Lady Resort, Leavenworth, WA.

11/8/24 CAR T cell Symposium, "Protein interaction network analysis of PLAT02 clinical samples associated with CRS and ICANS". Seattle Children’s Research Institute, Seattle, WA

National

10/23/15 Invited Speaker, “Immunoprecipitation-Flow Cytometry measures huntingtin protein in human CSF”, Huntington Study Group, Tampa, FL, USA.

2/16/16 Invited Speaker, “Clustering the Autisms using synaptic protein interaction networks”, Psychiatric Research Society, Park City, UT, USA.

2/19/19 Plenary Speaker, “The Thought Process of Cells: Direct measurement of signal transduction network states demonstrate mechanisms by which cells encode stimulus-specific information”, Winter Quantitative Biology, Honolulu, HI, USA.

3/16/19 Invited Speaker, “Convergence Among the Autisms: Characterizing a synaptic signal transduction network composed of the protein products of autism-linked genes”, World Congress of Society for Brain Mapping and Therapeutics 16th Annual Conference, Los Angeles, CA, USA.

2/20/20 Plenary Speaker, “Sorting Signal from Noise in Signal Transduction Networks”, Winter Quantitative Biology, Kailua-Kona, HI, USA.

12/3/22 Invited Speaker, “Identification of Novel Drug Targets through the analysis of protein interaction networks”. Synchrony Meeting, Pleasanton, CA, USA.

4/21/24 Invited Speaker, "Protein-protein interactions that mediate CAR signaling show unexpectedly large differences between structurally similar CARs". St. Baldric's Foundation EPICC talk series, Online/virtual.

International

3/27/14 Invited speaker, “Towards biochemical analysis of primary T cell signaling in Alopecia areata using multiplex IP-FCM” 9th International Congress on Autoimmunity, Nice, France.

10/2/15 Invited Speaker, “Signal Transduction Networks at the Immune and Neuronal Synapse”, UBC “TGIF” Lecture Series, Victoria, BC, Canada