5TH EUROPEAN SYNAPSE MEETING

7th – 9th September 2015

University of BRISTOL

CONTENTS

PROGRAMME

Day 1: Monday 7th September

- 8:00-8:45 Registration and tea/coffee

- 8:45-9:00 Welcome and opening remarks

Chair: Jeremy Henley

- 9:00-10:30 Molecular Biology of synapses I
  - **Antoine Triller.** "Stability and Plasticity of Synapses: a Molecular Movie"
  - **Guus Smit.** "Modulatory roles of AMPA receptor-associated proteins"
  - **Josef Kittler**."Receptor and organelle dynamics in synaptic health and disease"

- 10:30-11:00 Break

- 11:00-12:30 Synaptic physiology and plasticity I
  - **Stuart Cull-Candy.** "Regulation of calcium-permeable AMPARs by auxiliary subunits"
  - **Chris McBain**. "Constructing the excitatory drive of a hippocampal feedforward inhibitory pathway"
  - **Judit Makara.** "Cooperativity of excitatory synaptic inputs"

- 12:30-2:30 Lunch and poster session I

Chair: Christophe Mulle

- 2:30-3:30 Synapses within networks I
  - **Denis Jabaudon.** "Encoding neuron class and hierarchy in developing synaptic networks"

- **Attila Losonczy.** "Functional imaging hippocampal synaptic microcircuits in behaving mice"

- 3:30-4:00 Break

- 4:00-4:30 Short Talks I
  - **David Lyons.** “Synaptic vesicle release regulates myelin sheath number of individual oligodendrocytes in vivo”
  - **Neil Hardingham.** “Acute and chronic effects of transient mutant DISC1 on layer II/III mouse barrel cortex”

- 4:30-5:30 Synapses within networks II
  - **Ole Paulsen.** "Hippocampal spike timing-dependent plasticity: Mechanisms and modulation"
  - **Dietmar Schmitz**. “Differential embedding of hippocampal output neurons during high-freuquency network synchronisation”

- 6:00-7:00 Public Lecture
  - **Professor Steve Williams.** Professor of Imaging Sciences, King's College London. "Can a brain scan reveal your desires, depression or dementia?"

- 7:30 Speakers’ dinner - Glass Boat, Welsh Back, Bristol, BS1 4SB

PROGRAMME

Day 2: Tuesday 8th September

- 8:00-9:00 Delegates arrive for morning coffee

Chair: Monica diLuca

- 9:00-10:00 Presynaptic mechanisms I
  - **Nils Brose. "**Molecular determinants of presynaptic accuracy and plasticity"
  - **Stephan Sigrist.** "Shedding light on synapse assembly"

- 10:00-10:30 Short talks II
  - **Helene Marie.**"APP intracellular domain (AICD) modulates synaptic signal integration"
  - **Andrew Penn.** "Interplay between AMPA receptor surface diffusion and desensitization regulates postsynaptic short-term plasticity at CA1 hippocampal synapses"

- 10:30-11:00 Break

- 11:00-12:30 Molecular Biology of synapses II
  - **Ingo Greger.** "Structure, assembly and organization of heteromeric AMPA receptors"
  - **Erin Schumann.** "Local translation at synapses"
  - **Katherine Roche.** "Molecular Mechanisms Regulating Trafficking of Synaptic Proteins". Sponsored by the Biochemical Society.

- 12:30-3:00 Lunch and poster session II

Chair: Zafar Bashir

- 3:00-4:00 Glial regulation of synaptic function
  - **Stephane Oliet.** "Surface dynamics of astroglial glutamate transporter GLT-1"
  - **Nathalie Rouach.** "Unconventional role for astroglial connexins in synaptic strength and memory"

- 4:00-4:30 Break

- 4:30-5:30 Presidential lecture
  - **Rob Malenka.** "Molecular mechanisms of AMPA receptor exocytosis during LTP"

- **6.30 - 11:00 Gala Dinner - Goldney Hall, Lower Clifton Hill, Bristol, BS8 1BH**

  All delegates are invited to attend the gala dinner. If you are unable to attend please let us know by emailing - esm-bristol2015@bristol.ac.uk
  - 6.30 pm Guests arrive for drinks
  - 7.30 pm Guests called to dinner
  - 11.00 pm Event to close

PROGRAMME

Day 3: Wednesday 9th September

- 8:00-9:00 Delegates arrive for morning coffee

Chair: Matthijs Verhage

9:00-10:00 Presynaptic mechanisms II

- **Inna Slutsky.** "Dual regulation of synaptic transmission by IGF-1 receptor in hippocampal circuits"
- **Ana Fejtova**. "CtBP1 links activity-induced molecular dynamics at presynapse with regulation of gene expression"

- 10:00-10:30 Short talks III
  - **Thomas Younts**. "Presynaptic protein synthesis is required for long-term depression of inhibition in the hippocampus"
  - **Katharine Smith.** "A role for autism-associated cadherin-10 at excitatory and inhibitory synapses"

- 10:30-11:00 Break

- 11:00-12:30 Synaptic physiology and plasticity II
  - **Peter Jonas.** "Synaptic mechanisms of pattern completion"
  - **Angus Silver.** "Determinants of vesicle mobility and supply at a central synapse"
  - **Dmitri Rusakov.** "Synaptic microenvironment and memory trace formation"

- 12:30 Closing remarks followed by Lunch

POSTERS

Posters should be put up on the numbered boards in the main hall before Monday lunchtime and taken down by Wednesday lunchtime. Posters with odd numbers will be formally presented in the Monday poster session and those with even numbers in the Tuesday poster session. Please be aware that because the posters are within the same hall as the lectures any poster discussion can only occur outside of the speaker sessions.

1. Agra de Almeida Quadros, AR
   Fbxo41 Promotes Disassembly of Neuronal Primary Cilia.

2. Amici, M, Pope, RJP, Collingridge, GL
   Novel insights into the role of PI4KII in synaptic signalling in the hippocampus.

3. Ashby, MC, Jackson, J, Johnson, J, Witton, J, Ahmed, Z, Hutton, ML, Isaac, JT, O'Neill, MJ
   Alterations in synaptic dynamics during early tauopathy.

4. Balik, A
   F Structural properties of M3-S2 linkers and their action during glutamate receptor channel opening.

5. Calahorro, F, Ferreiro, T, Dillon, J, O´Connor, V, Holden-Dye, L
   A microfluidic platform for screening synaptic defect in Autism Spectrum Disorders, using C. elegans as a model.

6. Calahorro, F, Keefe, F, Holden-Dye, L, O'Connor, V
   Modelling the synaptic code for autism spectrum disorders: neuroligin/neurexin axis

7. Caldeira, GL, Louros, SR, Peça, J, Pato, CN, Chen, C, Carvalho, AL
   Stargazin, a new candidate for schizophrenia - identification of new variants and targeted therapies.

8. Carbone, A, Plested, AJR
   Superactivation of AMPA receptors by auxiliary proteins.

9. Carmichael, R, Wilkinson, KA, Ashby, MC, and Henley, JM
The role of MEF2A in AMPA receptor trafficking.

10. Carta, M, Bettadapura, S, Gorlewicz, A, Labrousse, V, Rebola, N, Mulle, C
NMDA receptors in CA3 pyramidal cells: subunit composition and plasticity.

11. Chamberland, S
Distinct roles for P/Q- and N-type voltage-gated calcium channels in synchronous glutamate release.

12. Correa, S, DaSilva, LL, Wall, MJ, Wauters, SC, de Almeida, LP, Yunan C Januário, YC, Müller, J
Arc directly interacts with clathrin-adaptor proteins to facilitate AMPAR endocytosis.

13. Crisp, SJ, Vincent, A, Kullmann, DM
An Electrophysiological Study of Pathological Mechanisms of Glycine Receptor Antibodies.

14. Diaz, E, Kaur, I, Chenaux, G, Matt, L, Hill, TC, Yarov-Yarovoy, V, Liu, XB, Kirk, LM, Zito, K, Hell, J
Activity-dependent palmitoylation underlies SynDIG1 regulation of excitatory synapse development.

15. Dobson, KL, Bellamy, TC
Independence of plasticity mechanisms at synaptic and ectopic release sites in the cerebellum.

16. Domanski, APF, Isaac, JTR, Kind, PC
Bottom-Up Modeling of Network Disruption by Synaptic Defects in the Fmr1-KO Mouse.

17. Dzyubenko, E, Andreas, F
A new efficient automatic method for synapse quantification in cultured neuronal networks.

18. Eckel, R, Walker, MC, Kittler, JT
Increase in Diffusion Dynamics of Synaptic GABAARs is Reversed by Inhibition of Calcineurin during Status Epilepticus.

19. Fernandes, D, Ribeiro, L, Santos, S, Carvalho, AL
Homeostatic regulation of synaptic AMPA receptors by Caspr1 and the RNA-binding protein ZBP1.

20. Fivaz, M, Garcia-Alvarez G, Lu Bo, Yap, KA, Shetty, MS, Wong LC, Thevathasan JV, Lim L, Ji F, Tan KW, Mancuso JJ, Tang W, Poon SY, Augustine GJ, Sajikumar S, Bichler Z
STIM2 regulates PKA-dependent phosphorylation and trafficking of AMPA receptors.

21. Fouillet, A, Bigoli, M, Virdee, J, Findlay, J, Broad, L, Ursu, D
Optimisation of neuronal cultures derived from human iPSC cells as disease models for neurological disorders.

22. Frere, S
Hippocampal amyloid beta signaling and alterations of the synaptic properties in the dentate gyrus.

23. Gazit, N, Shapira, I, Slomowitz, E, Vertkin, I, Sheiba, M, Yael Mor, Y, Slutsky, I
IGF-1 receptor activity differentially regulates spontaneous and evoked synaptic vesicle release

24. Glebov, O
Molecular clustering at the active zone controls presynaptic function

25. Hardingham, NR, Greenhill, SD, Seaton, G, De Hann, AM, Fox, K
Acute and chronic effects of transient mutant DISC1 on layer II/III mouse barrel cortex.

26. Helm, M
The molecular anatomy of dendritic spines.

27. Hussien, M, Carvalho, AL, Peça, J
Role of GPRASP2 in mGluR-dependent signaling, regulation of neuronal morphology and spine maturation.

28. Jouhanneau, JS, Ferrarese, L , Kremkow, J, Dorrn, A, Poulet, JFA
In vivo monosynaptic excitatory transmission between layer 2/3 pyramidal neurons during active cortical states.

29. Kaempf, N, Kochlamazashvili, G, Puchkov, D, Maritzen, T, Bajjalieh, SM, Natalia L. Kononenko, NL, Haucke, V
Overlapping functions of stonin 2 and SV2 in sorting of the calcium sensor synaptotagmin 1 to synaptic vesicles.

30. Kalinowska, M
Dynamic remodelling of dendritic spines by group I metabotropic glutamate receptors requires actinin-4

31. Kessels, H, Renner, MC, Albers, EHH, Gutierrez-Castellanos, N, Tessa R. Lodder, TRR, Reinders, NR, De Zeeuw, CI
Fear Elicits Synaptic Potentiation through Activation of AMPA-Receptor Subunit GluA3.

32. Koch, N, Koch, D, Sabanov, V, Krüger, S, Ahmed, T, Montag, D, Kessels, MM, Balschun, D, Qualmann, B
LTD and LTP expression, GluR1 surface organisation and internalisation requires Syndapin I.

33. Koerber, C, Harrach, H, Kuner, T
Extracellular matrix ensures temporally precise high frequency synaptic transmission at the calyx of held.

34. Koopmans, F, Van Nierop P, Osumi-Sutherland D., Mi H, Lovering RC, Foulger R, Coba MP, Hussain N K, Thomas P D , Feng G, Smit A B, Verhage M
Synapse Gene Ontology and Annotation Project.

35. Koutsikou, S, Merrison-Hort, R, Borisyuk, R, Roberts, A, Soffe, SR
Sensory pathway neurons extend synaptic excitation and slow the initiation of tadpole swimming.

36. Krieger, J
Computational analysis of glutamate receptor N-terminal domain function

37. Lee, Yeseul, Bortolloto, ZA, Bong-Kiun Kaang, B-K, Collingridge GL
A GSK-3 inhibitor blocks the induction of LTD in the hippocampus in vivo and enhances the accuracy of spatial memory.

38. Lipstein, N, Pieńkowska, K, Calloway, N, Michelassi, FE, Ryan, TA, Dittman, J, Taschenberger, H, Rhee, JS, Jans, J Brose, N
Impaired Munc13-dependent regulation of calcium channel function in a patient with neurological dysfunction.

39. Loss, O
An investigation into the contribution of TRAK kinesin adaptors to axonal and dendritic mitochondria

40. Lundgren, J, Ahmed, S, Schedin-Weiss, S, Gouras, GK, Winblad, B, Tjernberg, LO, Frykman, S
ADAM10 and BACE1 are localized to synaptic vesicles.

41. Lyons, D, Mensch S, Baraban M, Almeida R, Czopka T, Ausborn J, El Manira, A
Synaptic vesicle release regulates myelin sheath number of individual oligodendrocytes in vivo.

42. Marie, H, Pousinha, PA, Raymond, EF, Mouska, X, Willem, M
APP intracellular domain (AICD) modulates synaptic signal integration.

43. Martin, C, Conforti, L, Georgiou, M, Dajas-Bailador, F
Investigating the role of miRNAs in axonal development and neuron connectivity.

44. McMillan, L
mAbp1 regulates WAVE1-mediated actin dynamics in dendritic spines

45. Mercier, M, Kullmann, DM
Hebbian long-term potentiation in feed-forward hippocampal interneurons.

46. Milosevic, I, Gowrisankaran, S
Rabconnectin-3 - endophilin-A interaction is important for the maturation of synaptic vesicles

47. Mubarak, B, Jeans A, Emptage N
The role of Cav2.1- and 2.2-type voltage-gated calcium channels in mediating homeostatic synaptic plasticity.

48. Nistor, P, May, PW, Caldwell, MA
Conducting Diamond Electrodes for Synaptic Activity Investigation.

49. O'Connor, V, Dalliere, N, Bhatla, N, Holden-Dye, L, Horowitz, HR , Walker, RJ
Distinct pharyngeal glutamate determinants underpinning the context dependent modulation of feeding behaviour.

50. Orav, E, Shintyapina, A, Lauri, SE
Neto1 expression is required for tonic KAR activity in the immature hippocampus.

51. Padamsey, Z
Glutamate release is inhibitory and unnecessary for presynaptic LTP

52. Palacios-Filardo, J, Mellor, JR
Regulation of the temporoammonic pathway in the hippocampus by acetylcholine.

53. Park, P, Sanderson, T, Amici, M, Zhuo, M, Bong-Kiun Kaang, B-K, Collingridge, GL
Stimulus parameters determine the role of calcium-permeable AMPARs in the induction of LTP at hippocampal CA1 synapses.

54. Pegasiou, C-M, Gomez-Nicola, D, Sri, S, Zolnourian, A, Ahmed, AI, Bulters, D, Perry, VH, Vargas-Caballero, M
Need and opportunity for the analysis of adult human neurons: Understanding the function and dysfunction of excitatory synapses.

55. Pelucchi, S, Musardo, S, Passafaro, M, Gardoni, FE, Marcello E, Di Luca, M
CAP2, a regulator of actin filament dynamic, is a novel ADAM10 Interactor.

56. Penn, A, Georges, F, Carbone, AL, Espana, A, Royer, L, Breillat, C, Groc, L, Plested, A, Choquet, D
Interplay between AMPA receptor surface diffusion and desensitization regulates postsynaptic short-term plasticity at CA1 hippocampal synapses.

57. Perrins, R, Yong, L, Pickering, AE
Noradrenergic inhibitory synaptic transmission by the locus coeruleus: optogenetic characterisation.

58. Pickford, J, Apps, R, Bashir, ZI
Muscarinic acetylcholine receptors regulate synaptic activity of neurons of the cerebellar nuclei.

59. Privitera, L, Morè, L, Arthur, SJ, Frenguelli, BG
MSK1 is required for experience-dependent enhancement of hippocampal plasticity and cognition.

60. Qiu, J, McQueen, J, Bilican, B, Dando, O, Livesey, M, Haghi, G, Cezard, T, Burr, K, Patani, R, Rajan, R, Sheppard, O, Kind, PC, Simpson, I, Tybulewicz, VLJ, Wyllie, DJA, Gharbi, K, Fisher, E, Chandran, S, Hardingham, GE
Conservation and divergence of the activity-dependent transcriptome of mouse and human neurons.

61. Reinders, N, Pao, Y, Renner, MC, van Huijstee, A, Malinow, R, Kessels, HW
AMPA-receptor subunit GluA3 is crucial for Aβ-mediated synaptic and memory deficits.

62. Rojek, K, Niewiadomski, P, Bernadzki, K, Doleżyczek, H, Rylski, M, Kaczmarek, L, Jaworski, J, Prószyński, T
Expression and function of Angiomotin family of proteins in the brain.

63. De La Rosa, M, Karpova, A, Kreutz, MR
Mechanisms and dynamics of long-distance protein transport of Jacob from synapse-to-nucleus.

64. Rost, B, Schneider, F, Grauel, MK, Wozny, C, Bentz, C, Blessing, A, Rosenmund, T, Jentsch, T, Schmitz, D, Hegemann, P, Rosenmund, C
Optogenetic Control of Synaptic Vesicle Acidification.

65. Sabec, M, Warburton, CE, Bashir ZI
Nicotinic receptors exert bidirectional modulation of hippocampal-medial PFC synaptic plasticity.

66. Sanderson, T, Kim, SJ, Collingridge, GL
DHPG-induced long term depression is not input-specific but requires Schaffer collateral stimulation.

67. Schmidt, J, Ferreira, JS, Carvalho, AL
Role of ARHGAP8, a novel Rho GAP, in regulating excitatory synapses

68. Smejkalova, T
Selective inhibition of tonically over synaptically activated NMDA receptors by pregnane derivatives

69. Smith, K, Jones, KA, Kopeikina, KJ, Burette, AC, Copits, BA, Hanley, JG, Swanson, GT, Richard J. Weinberg, RJ, Penzes, P
A role for autism-associated cadherin-10 at excitatory and inhibitory synapses.

70. Srivastava, DK, Michael Deans, PJ, Halai, S, Raval, P, Warre-Cornish, K, Sellers, K, Cocks, G, Price, J
A novel role for the schizophrenia susceptibility protein ZNF804A at synapses in human neurons?

71. Styr, B
Interplay between population firing stability, single neuron dynamics and inhibition in hippocampal networks.

72. Szabadics, J, Neubrandt, M, Brunner, J
Single physiological burst-evoked amplification of unitary mossy fibre synaptic responses in CA3 feedforward inhibitory cells.

73. Tigaret, C, Olivo, V, Sadowski, JHLP, Ashby, MC, Mellor, JR
Distinct spine Ca2+ sources and mGluRs encode hippocampal Spike Timing-Dependent Plasticity.

74. Truckenbrodt, S
The age of the synaptic vesicle determines its ability to release.

75. Udakis, M, Wonnacott, S, Mansvelder, H, Bailey, C
Synaptic plasticity in the medial prefrontal cortex: role of α7 nicotinic acetylcholine receptors.

76. Vertkin, I
GABA(B) receptor deficiency causes failure of neuronal homeostasis in hippocampal networks

77. Wagner, M, Staras, K
Synapse-specific determinants of single-vesicle recycling kinetics in central presynaptic terminals.

78. Wentzel, C, Müller, M
Homeostatic control of presynaptic protein turnover and synaptic transmission

79. Williams, S, Pavlov, I, Williams, RS, Walker, MC
The role of AMPA receptors in the treatment of epilepsy.

80. Winters, B, Gregoriou, GC, Wells, OAA, Bagley EE
Regulation of Amygdala Intercalated Cells by Endogenous Opioids: Implications for Anxiety Disorders.

81. Younts, T, Klein, ME, Hannah R, Monday, HR, Jordan, BA, Castillo, PE
Presynaptic protein synthesis is required for long-term depression of inhibition in the hippocampus.

82. Catarino, T, Ribeiro, F, Santos, S, Esteban, J,, Carvalho, A
Constitutive activity of the ghrelin receptor controls AMPARs synaptic insertion in the hippocampus

83. Lenkey, N, Holderith, N, Kirizs, T, Nusser, Z
CCK+ perisomatic and dendritic axon terminals are morphologically and functionally different

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- You will see The Cloud landing page and here you can login/register with your account

Once logged in you're good to go! Please note that web based apps will not work until the connection has been established and you have signed in successfully via your web browser.

Local travel information

BUS TO TEMPLE MEADS TRAIN STATION

The number 8 and number 9 buses run to and from Bristol Temple Meads train station and run every 10 minutes in peak times. The nearest stop is on Queens Road, near Sainsbury's supermarket (turn right on exiting Wills Memorial building and walk 200m). The journey should take about 20-30 minutes.

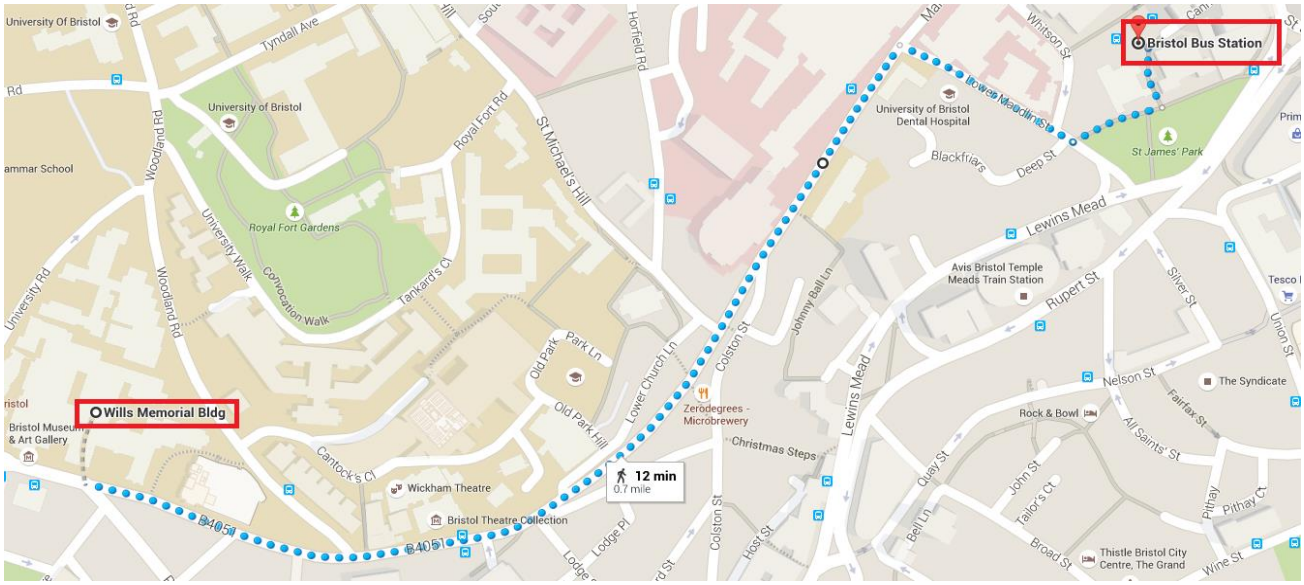
http://www.firstgroup.com/bristol-bath-and-west

HOW TO GET TO THE AIRPORT

The Airport Flyer is available 24 hours a day, 7 days a week. At peak times, it leaves every 8 minutes. Closest stops to Wills Memorial Building are at Bristol Bus & Coach Station (see below), a single ticket costs £7.00 and you can pay the driver when you board.

HOW TO GET TO THE BUS STATION

The bus station is a short 12 minute walk from Wills Memorial Building.



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