Andrea Musacchio, PhD
Director, Department of Mechanistic Cell Biology
Max Planck Institute of Molecular Physiology, Dortmund (Germany)
& Professor, University of Duisburg-Essen, Essen (Germany)

Publications and preprints

1. Esposito Verza A, Conti D, Rodrigues Pedroso PD, Oberste-Lehn L, Koerner C, Wohlgemuth S, Mansurkhodzhaev A, Vetter IR, Pesenti ME & **Musacchio A** (2025) Molecular requirements for PLK1 activation by T-loop phosphorylation. *bioRxiv* doi: https://doi.org/10.1101/2025.07.25.666769
2. Cmentowski C & **Musacchio A** (2025) The BUB1 and BUBR1 paralogs scaffold the kinetochore fibrous corona. *Science Advances*, in press
3. Walstein K, Hill L, Vogt D, Vetter IR, Pan D & **Musacchio A** (2025) M18BP1 valency and a distributed interaction footprint determine epigenetic centromere specification in humans. *bioRxiv* doi: https://doi.org/10.1101/2025.06.27.661933
4. Haase MAB, Lazar-Stefanita L, Baudry L, Wudzinska A, Zhou X, Rokas A, Hittinger CT, **Musacchio A**, Boeke JD (2025) Ancient co-option of LTR retrotransposons as yeast centromeres. *bioRxiv* doi: https://doi.org/10.1101/2025.04.25.647736
5. Ren L, Gasper R, Pesenti EM, Janning P, Müller F, Koerner C, Geue P, Wohlgemuth S, Esposito Verza A, Vetter IR & Musacchio A (2025) Molecular anatomy of PLK1 master docking motifs. *bioRxiv* doi: https://doi.org/10.1101/2025.03.28.645803
6. Esposito Verza A, **Musacchio A** & Conti D (2025) Decoding the language of PLK1 docking motifs and activation mechanisms. Trends in Cell Biology, S0962-8924(25)00156-4. doi: 10.1016/j.tcb.2025.07.004. Online ahead of print.
7. Borsellini A, Conti D, Cutts EE, Harris RJ, Walstein K, Graziadei A, Cecatiello V, Aarts TF, Xie R, Mazouzi A, Sen S, Hoencamp C, Pleuger R, Ghetti S, Oberste-Lehn L, Pan D, Bange T, Haarhuis JHI, Perrakis A, Brummelkamp TR, *Rowland BD, ***Musacchio A** & *Vannini A (2025) Condensin II activation by M18BP1. *Mol Cell* doi: 10.1016/j.molcel.2025.06.014. *co-corresponding author
8. Sethi S, Ghetti S, Cmentowski T, Guerriere TB, Stege P, Piano V & **Musacchio A** (2025) Interplay of kinetochores and catalysts drives rapid assembly of the mitotic checkpoint complex. *Nat Commun* **16**, 4823. doi: 10.1038/s41467-025-59970-1.
9. Schweighofer J, Mulay B, Hoffmann I, Vogt D, Pesenti ME & **Musacchio A** (2025) Interactions with multiple inner kinetochore proteins determine mitotic localization of FACT. *J Cell Biology* **224**: e202412042. https://doi.org/10.1083/jcb.202412042
10. Moura M, Barbosa J, Pinto I, Leça N, Cunha-Silva S, Esposito Verza A, Pedroso PD, Lemaire S, Duro J, Silva M, Oliveira A, Reis R, Nilsson J, Sunkel C, **Musacchio A**, Bollen M & Conde C (2024) POLO kinase inhibits Protein Phosphatase 1 to promote the Spindle Assembly Checkpoint and prevent aneuploidy. *bioRxiv* doi: 10.1101/2024.12.23.630043
11. Conti D, Esposito Verza A, Pesenti ME, Cmentowski V, Vetter IR, Pan D & **Musacchio A** (2024) Role of protein kinase PLK1 in the epigenetic maintenance of centromeres, *Science* **385**, 1091-1097. doi: 10.1126/science.ado51
12. Pleuger R, Cozma C, Hohoff S, Denkhaus C, Dudziak A, Kaschani F, Kaiser M, **Musacchio A**, Vetter IR & Westermann S (2024) Microtubule end-on attachment maturation regulates Mps1 association with its kinetochore receptor. *Curr Biol*. **34**, 2279-2293. doi: 10.1016/j.cub.2024.03.062.

13. Hedtfeld M, Dammers A, Koerner C & **Musacchio A** (2024) A validation strategy to assess the role of phase separation as determinant of macromolecular localization, *Molecular Cell* **84**:1783-1801.e7. doi: 10.1016/j.molcel.2024.03.022

14. Polley S, Raisch T, Koerner M, Terbeck M, Gräter F, Raunser S, Aponte-Santamaría C, Vetter IR & **Musacchio A** (2024) Structure of the human KMN complex and implications for regulation of its assembly, *Nat Struct Mol Biol* **31**, 861-873. doi: 10.1038/s41594-024-01230-9

15. **Musacchio A** (2024) Thirty years of structural changes, *Nat Struct Mol Biol* **31**, 4-5. doi: 10.1038/s41594-023-01193-3

16. Cmentowski V, Ciossani G, d'Amico E, Wohlgemuth S, Owa M, Dynlacht B & **Musacchio A** (2023) RZZ-Spindly and CENP-E form an integrated platform to recruit dynein to the kinetochore corona. *EMBO J*. **42**, e114838. doi: 10.15252/embj.2023114838

17. Polley S, Müschenborn H, Terbeck M, De Antoni A, Vetter IR, Dogterom M, **Musacchio A***, Volkov VA* & Huis in 't Veld PJ* (2023) Stable kinetochore-microtubule attachment requires loop-dependent Ndc80-Ndc80 binding. *EMBO J* **41**, e112504. doi: 10.15252/embj.2022112504

18. Chen C, Piano V, Alex A, Han SJY, Huis In 't Veld PJ, Roy B, Fergle D, **Musacchio A** & Joglekar AP (2023). *Nat Commun*. **14**:1529. doi: 10.1038/s41467-023-37235-z

19. Di Cesare E, Moroni S, Bartoli J, Damizia M, Giubettini M, Koerner C, Krenn V, **Musacchio A** & Lavia P (2023) Aurora B SUMOylation Is Restricted to Centromeres in Early Mitosis and Requires RANBP2. *Cells* **12**:372. doi: 10.3390/cells12030372

20. Schwietert F, Volkov VA, Huis In 't Veld PJ, Dogterom M, **Musacchio A** & Kierfeld J (2022) Strain stiffening of Ndc80 complexes attached to microtubule plus ends. *Biophys J*. **21**:4048-4062. doi: 10.1016/j.bpj.2022.09.039

21. d'Amico E, MUD Ahmad, Cmentowski V, Girbig M, Müller F, Wohlgemuth S, Brockmeyer A, Maffini S, Janning P, Vetter IR, Carter AP, Perrakis A & **Musacchio A** (2022) Conformational transitions of the mitotic adaptor Spindly underlie its interaction with Dynein and Dynactin, *J Cell Biol*. **221**(11):e202206131. doi: 10.1083/jcb.202206131

22. Celestino R, Gama JB, Castro-Rodrigues AF, Barbosa DJ, Rocha H, d'Amico E, **Musacchio A**, Carvalho AX, Morais-Cabral JH & Gassmann R (2022) JIP3 interacts with dynein and kinesin-1 to regulate bidirectional organelle transport. *J Cell Biol*. **221**:e202110057. doi: 10.1083/jcb.202110057

23. Pesenti M, Raisch T, Conti D, Walstein K, Hofmann I, Vogt D, Pumbaum D, Vetter IR*, Raunser S* & **Musacchio A*** (2022) Structure of the human inner kinetochore CCAN complex and its significance for human centromere organization, *Mol Cell* **82**:2113-2131.e8. doi: 10.1016/j.molcel.2022.04.027 (*co-corresponding)

24. Raisch T, Ciossani G, d'Amico E, Cmentowski V, Carmignani S, Maffini S, Merino F, Wohlgemuth S, Vetter IR*, Raunser S* & **Musacchio A*** (2022) Structure of the RZZ complex and molecular basis of Spindly-driven corona assembly at human kinetochores, *EMBO J* **41**:e110411. doi: 10.15252/embj.2021110411 (*co-corresponding)

25. **Musacchio A** (2022) On the role of phase separation in the biogenesis of membraneless compartments, *EMBO J*. 41:e109952. doi: 10.15252/embj.2021109952.

26. Martin IM, Aponte-Santamaría C, Schmidt L, Hedtfeld M, Iusupov A, **Musacchio A** & Gräter F (2021) Phosphorylation tunes elongation propensity and cohesiveness of INCENP's intrinsically disordered region, *J Mol Biol* **434**:167387. DOI: 10.1016/j.jmb.2021.167387

27. Huis In 't Veld PJ, Wohlgemuth S, Koerner C, Müller F, Janning P & **Musacchio A** (2021) Reconstitution and use of highly active human CDK1:Cyclin-B:CKS1 complexes, *Protein Sci*. **31**:528-537.doi: 10.1002/pro.4233.

28. van den Boom J, Kueck AF, Kravic B, Müschenborn H, Pan D, Kaschani F, Kaiser M, **Musacchio A** & Meyer H (2021) Substrate loop insertion by VCP/p97 during PP1 complex disassembly, *Nature Struct Mol Biol.* **28**):964-971. doi: 10.1038/s41594-021-00684-5.

29. Walstein K, Petrovic A, Pan D, Hagemeier B, Vogt D, Vetter IR & **Musacchio A** (2021) Assembly principles and stoichiometry of a complete human kinetochore module, *Sci* Adv. **7**:eabg1037. doi: 10.1126/sciadv.abg1037

30. Mueller F, Friese A, Pathe C, da Silva RC, Rodriguez KB, **Musacchio A*** & Bange T* (2021) Overlap of NatA and IAP substrates implicates N-terminal acetylation in protein stabilization, *Sci Adv*. **7**:eabc8590. doi: 10.1126/sciadv.abc8590. (*co-corresponding)

31. Piano V, Alex A, Stege P, Maffini S, Stoppiello GA, Huis In 't Veld PJ, Vetter IR & **Musacchio A** (2021) CDC20 assists its catalytic incorporation in the mitotic checkpoint complex. *Science* **371**(6524):67-71. doi: 10.1126/science.abc1152.

32. Singh P, Pesenti ME, Maffini S, Carmignani S, Hedtfeld M, Petrovic A, Srinivasamani A, Bange T & **Musacchio A** (2021) BUB1 and CENP-U, primed by CDK1, are the main PLK1 kinetochore receptors in mitosis, *Mol Cell*. **81**:67-87. doi: 10.1016/j.molcel.2020.10.040.

33. Kong M, Cutts EE, Pan D, Beuron F, Kaliyappan T, Xue C, Morris EP, **Musacchio A**, Vannini A & Greene EC (2020) Human Condensin I and II Drive Extensive ATP-Dependent Compaction of Nucleosome-Bound DNA. *Mol Cell*. **79**:99-114. doi: 10.1016/j.molcel.2020.04.026.

34. Allan LA, Camacho Reis M, Ciossani G, Huis In 't Veld PJ, Wohlgemuth S, Kops GJ, **Musacchio A** & Saurin AT (2020) Cyclin B1 scaffolds MAD1 at the kinetochore corona to activate the mitotic checkpoint. *EMBO J*. e103180. doi: 10.15252/embj.2019103180.

35. Huis In 't Veld PJ, Volkov VA, Stender ID, **Musacchio A*** & Dogterom M* (2019) Molecular determinants of the Ska-Ndc80 interaction and their influence on microtubule tracking and force-coupling. *Elife* 8. pii: e49539. doi: 10.7554/eLife.49539 (*co-corresponding).

36. Pan D*, Walstein K, Take A, Bier D, Kaiser N & **Musacchio A*** (2019) Mechanism of centromere recruitment of the CENP-A chaperone HJURP and its implications for centromere licensing, *Nature Commun* 10:4046. doi: 10.1038/s41467-019-12019-6 (*co-corresponding).

37. Alex A, Piano V, Polley S, Stuiver M, Voss S, Ciossani G, Overlack K, Voss B, Wohlgemuth S, Petrovic A, Wu Y, Selenko P, **Musacchio A*** & Maffini S* (2019) Electroporated recombinant proteins as tools for in vivo functional complementation, imaging and chemical biology. *Elife*, e48287. doi: 10.7554/eLife.48287 (*co-corresponding).

38. Weith M, Seiler J, van den Boom J, Kracht M, Hülsmann J, Primorac I, Del Pino Garcia J, Kaschani F, Kaiser M, **Musacchio A**, Bollen M & Meyer H (2018) Ubiquitin-Independent Disassembly by a p97 AAA-ATPase Complex Drives PP1 Holoenzyme Formation. *Mol Cell* **72**:766-777. doi: 10.1016/j.molcel.2018.09.020.

39. Pesenti ME, Prumbaum D, Auckland P, Smith CM, Faesen AC, Petrovic A, Erent M, Maffini S, Pentakota S, Weir JR, Lin YC, Raunser S, McAinsh AD & **Musacchio A** (2018) Reconstitution of a 26-Subunit Human Kinetochore Reveals Cooperative Microtubule Binding by CENP-OPQUR and NDC80. *Mol Cell*. **71**:923-939. doi:

10.1016/j.molcel.2018.07.038.

40. Pan D, Brockmeyer A, Mueller F, **Musacchio A** & Bange T (2018) A simplified protocol for cross-linking mass spectrometry using the MS-cleavable cross-linker DSBU with efficient cross-link identification. *Anal Chem*. **90**:10990-10999. doi: 10.1021/acs.analchem.8b02593.

41. Sacristan C, Ahmad MUD, Keller J, Fermie J, Groenewold V, Tromer E, Fish A, Melero R, Carazo JM, Klumperman J, **Musacchio A**, Perrakis A & Kops GJ (2018) Dynamic kinetochore size regulation promotes microtubule capture and chromosome biorientation in mitosis. *Nat Cell Biol*. **20**:800-810. doi: 10.1038/s41556-018-0130-3.

42. Ciossani G, Overlack K, Petrovic A, Huis in 't Veld P, Koerner C, Wohlgemuth S, Maffini S & **Musacchio A** (2018) Kinetochore recruitment of CENP-F illustrates how paralog divergence shapes kinetochore composition and function. *J Biol Chem*. **26**:10084-10101. doi: 10.1074/jbc.RA118.003154.

43. Volkov VA, Huis In 't Veld PJ, Dogterom* M & **Musacchio A*** (2018) Multivalency of NDC80 in the outer kinetochore is essential to track shortening microtubules and generate forces. *Elife*, e36764. doi: 10.7554/eLife.36764. (*co-corresponding)

44. Pentakota S, Zhou K, Smith C, Maffini S, Petrovic A, Morgan GP, Weir JR, Vetter IR, **Musacchio A*** & Luger K* (2017) Decoding the centromeric nucleosome through CENP-N. *Elife*, e33442. doi: 10.7554/eLife.33442 (*co-corresponding).

45. Overlack K, Bange T, Weissmann F, Faesen AC, Maffini S, Primorac I, Müller F, Peters JM & **Musacchio A** (2017) BubR1 Promotes Bub3-Dependent APC/C Inhibition during Spindle Assembly Checkpoint Signaling. *Curr Biol*. **7**:2915-2927. doi: 10.1016/j.cub.2017.08.033.

46. Vader G & **Musacchio A** (2017) The greatest kinetochore show on earth. *EMBO Rep*. **18**, 1473-1475. doi: 10.15252/embr.201744541.

47. Mosalaganti S, Keller J, Altenfeld A, Winzker M, Rombaut P, Saur M, Petrovic A, Wehenkel A, Wohlgemuth S, Müller F, Maffini S, Bange T, Herzog F, Waldmann H, Raunser S* & **Musacchio A*** (2017) Structure of the RZZ complex and molecular basis of its interaction with Spindly. *J Cell Biol*. **216**:961-981. doi: 10.1083/jcb.201611060 (*co-corresponding).

48. **Musacchio A** & Desai A (2017) A Molecular View of Kinetochore Assembly and Function. *Biology (Basel)*. **6**. pii: E5. doi: 10.3390/biology6010005

49. Faesen AC, Thanasoula M, Maffini S, Breit C, Müller F, van Gerwen S, Bange T & **Musacchio A** (2017) Basis of catalytic assembly of the mitotic checkpoint complex. *Nature* **542**:498-502. doi: 10.1038/nature21384.

50. Pan D, Klare K, Petrovic A, Take A, Walstein K, Singh P, Rondelet A, Bird AW & **Musacchio A** (2017) CDK-regulated dimerization of M18BP1 on a Mis18 hexamer is necessary for CENP-A loading. *Elife* **6**. pii: e23352. doi: 10.7554/eLife.23352.

51. Huis In 't Veld PJ, Jeganathan S, Petrovic A, Singh P, John J, Krenn V, Weissmann F, Bange T & **Musacchio A** (2016) Molecular basis of outer kinetochore assembly on CENP-T. *Elife* **5**. pii: e21007. doi: 10.7554/eLife.21007.

52. Petrovic A, Keller J, Liu Y, Overlack K, John J, Dimitrova Y, Jenni S, van Gerwen S, Stege P, Wohlgemuth S, Rombaut P, Herzog F, Harrison SC, Vetter IR & **Musacchio A** (2016) Structure of the MIS12 complex and molecular basis of its interaction with CENP-C at human kinetochores. *Cell* **167**:1020-1040. http://dx.doi.org/10.1016/j.cell.2016.10.005.

53. Weir JR, Faesen AC, Klare K, Petrovic A, Basilico F, Fischböck J, Pentakota S, Keller J,

Pesenti ME, Pan D, Vogt D, Wohlgemuth S, Herzog F & **Musacchio A** (2016) Insights from biochemical reconstitution into the architecture of human kinetochores. *Nature* **537**:249-253. doi: 10.1038/nature19333.

54. Borisy G, Heald R, Howard J, Janke C, Musacchio A & Nogales E (2016) Microtubules: 50 years on from the discovery of tubulin. *Nat Rev Mol Cell Biol*. **17**:322-8. doi: 10.1038/nrm.2016.45.

55. Friese A, Faesen AC, Huis In 't Veld PJ, Fischböck J, Prumbaum D, Petrovic A, Raunser S, Herzog F & **Musacchio A** (2016) Molecular requirements for the inter-subunit interaction and kinetochore recruitment of SKAP and Astrin. *Nat Commun.* **7**:11407. doi: 10.1038/ncomms11407.

56. Pesenti ME, Weir JR & **Musacchio A** (2016) Progress in the structural and functional characterization of kinetochores. *Curr Opin Struct Biol*. **37**:152-63. doi: 10.1016/j.sbi.2016.03.003.

57. Liu Y, Petrovic A, Rombaut P, Mosalaganti S, Keller J, Raunser S, Herzog F & **Musacchio A** (2016) Insights from the reconstitution of the divergent outer kinetochore of Drosophila melanogaster. *Open Biol*. **6**. doi: 10.1098/rsob.150236.

58. O'Connor A, Maffini S, Rainey MD, Kaczmarczyk A, Gaboriau D, **Musacchio A** & Santocanale C (2015) Requirement for PLK1 kinase activity in the maintenance of a robust spindle assembly checkpoint. *Biol Open* bio.014969. doi: 10.1242/bio.014969.

59. Breit C, Bange T, Petrovic A, Weir JR, Müller F, Vogt D & **Musacchio A** (2015) Role of Intrinsic and Extrinsic Factors in the Regulation of the Mitotic Checkpoint Kinase Bub1. *PLoS One* **10**:e0144673. doi: 10.1371/journal.pone.0144673.

60. Krenn V & **Musacchio A** (2015) The Aurora B Kinase in Chromosome Bi-Orientation and Spindle Checkpoint Signaling. *Front Oncol*. **5**:225. doi: 10.3389/fonc.2015.00225.

61. **Musacchio A** (2015) The Molecular Biology of Spindle Assembly Checkpoint Signaling Dynamics. *Curr Biol*. 25:R1002-18. doi: 10.1016/j.cub.2015.08.051.

62. Klare K, Weir JR, Basilico F, Zimniak T, Massimiliano L, Ludwigs N, Herzog F & **Musacchio A** (2015) CENP-C is a blueprint for constitutive centromere-associated network assembly within human kinetochores. *J Cell Biol*. 210:11-22. jcb.201412028.

63. **Musacchio A** (2015) Closing the Mad2 cycle. *Elife* 4. doi: 10.7554/eLife.08283.

64. Altenfeld A, Wohlgemuth S, Wehenkel A, Vetter IR & **Musacchio A** (2015) Complex assembly, crystallization and preliminary X-ray crystallographic analysis of the human Rod-Zwilch-ZW10 (RZZ) complex. *Acta Crystallogr F Struct Biol Commun*. **71**:438-42. doi: 10.1107/S2053230X15004343

65. Tachiwana H, Müller S, Blümer J, Klare K, **Musacchio A** & Almouzni G (2015) HJURP Involvement in De Novo CenH3(CENP-A) and CENP-C Recruitment. *Cell Rep*. **11**:22-32. doi: 10.1016/j.celrep.2015.03.013.

66. Faesen AC & **Musacchio A** (2015) The (Phospho) Needle in the (MELT) Haystack. *Mol Cell* **57**:765-6. doi: 10.1016/j.molcel.2015.02.026.

67. Meyer R, Faesen A, Vogel K, Jeganathan S, **Musacchio A** & Niemeyer CM. (2015) DNA-Directed Assembly of Capture Tools for Constitutional Studies of Large Protein Complexes. *Small* **11**:2669-74. doi: 10.1002/smll.201403544.

68. Overlack K, Primorac I, Vleugel M, Krenn V, Maffini S, Hoffmann I, Kops GJ & **Musacchio A** (2015) A molecular basis for the differential roles of Bub1 and BubR1 in the spindle assembly checkpoint. *Elife* **4**:e05269. doi: 10.7554/eLife.05269.

69. Vader G & **Musacchio A** (2014) HORMA Domains at the Heart of Meiotic Chromosome Dynamics. *Dev Cell*. **31**:389-91. doi: 10.1016/j.devcel.2014.11.009.

70. Eiteneuer A, Seiler J, Weith M, Beullens M, Lesage B, Krenn V, **Musacchio A**, Bollen M & Meyer H (2014) Inhibitor-3 ensures bipolar mitotic spindle attachment by limiting association of SDS22 with kinetochore-bound protein phosphatase-1. *EMBO J*. **33**:2704-2720.

71. Basilico F, Maffini S, Weir JR, Prumbaum D, Rojas AM, Zimniak T, De Antoni A, Jeganathan S, Voss B, van Gerwen S, Krenn V, Massimiliano L, Valencia A, Vetter IR, Herzog F, Raunser S, Pasqualato S & **Musacchio A** (2014) The pseudo GTPase CENP-M drives human kinetochore assembly. E*life* **8**:e02978. doi: 10.7554/eLife.02978

72. Overlack K, Krenn V & **Musacchio A** (2014) When Mad met Bub. *EMBO Rep*. **15**:326-8. doi: 10.1002/embr.201438574

73. Petrovic A, Mosalaganti S, Keller J, Mattiuzzo M, Overlack K, Krenn V, De Antoni A, Wohlgemuth S, Cecatiello V, Pasqualato S, Raunser S & **Musacchio A** (2014) Modular Assembly of RWD Domains on the Mis12 Complex Underlies Outer Kinetochore Organization. *Mol Cell* **53**:591-605. doi: 10.1016/j.molcel.2014.01.019.

74. Krenn V, Overlack K, Primorac I, van Gerwen S & **Musacchio A** (2014) KI motifs of human Knl1 enhance assembly of comprehensive spindle checkpoint complexes around MELT repeats. *Curr Biol* **24**:29-39. doi: 10.1016/j.cub.2013.11.046.

75. **Musacchio A** & Helin K (2013) Cell cycle, differentiation and disease. *Curr Opin Cell Biol*. 2013 Oct 16. doi:pii: S0955-0674(13)00151-8. 10.1016/j.ceb.2013.09.003.

76. Primorac I, Weir JR, Chiroli E, Gross F, Hoffmann I, van Gerwen S, Ciliberto A & **Musacchio A** (2013) Bub3 reads phosphorylated MELT repeats to promote spindle assembly checkpoint signaling, *Elife* **2**:e01030. doi: 10.7554/eLife.01030.

77. Primorac I & **Musacchio A** (2013) Panta rhei: The APC/C at steady state. *J Cell Biol*. **201**:177-89. doi: 10.1083/jcb.201301130.

78. Earnshaw WC, Allshire RC, Black BE, Bloom K, Brinkley BR, Brown W, Cheeseman IM, Choo KH, Copenhaver GP, Deluca JG, Desai A, Diekmann S, Erhardt S, Fitzgerald-Hayes M, Foltz D, Fukagawa T, Gassmann R, Gerlich DW, Glover DM, Gorbsky GJ, Harrison SC, Heun P, Hirota T, Jansen LE, Karpen G, Kops GJ, Lampson MA, Lens SM, Losada A, Luger K, Maiato H, Maddox PS, Margolis RL, Masumoto H, McAinsh AD, Mellone BG, Meraldi P, **Musacchio A**, Oegema K, O'Neill RJ, Salmon ED, Scott KC, Straight AF, Stukenberg PT, Sullivan BA, Sullivan KF, Sunkel CE, Swedlow JR, Walczak CE, Warburton PE, Westermann S, Willard HF, Wordeman L, Yanagida M, Yen TJ, Yoda K & Cleveland DW (2013) Chromosome Res. 21:101-6. doi: 10.1007/s10577-013-9347-y

79. Hagemann S, Wohlschlaeger J, Bertram S, Levkau B, **Musacchio A**, Conway EM, Moellmann D, Kneiseler G, Pless-Petig G, Lorenz K, Sitek B & Baba HA (2013) Loss of Survivin influences liver regeneration and is associated with impaired Aurora B function. *Cell Death Differ* **20**:834-44. doi: 10.1038/cdd.2013.20.

80. **Musacchio A** & Ciliberto A (2012) The spindle-assembly checkpoint and the beauty of self-destruction. *Nat Struct Mol Biol* **19**:1059-61

81. De Antoni A, Maffini S, Knapp S, **Musacchio A*** & Santaguida S* (2012) A small-molecule inhibitor of Haspin alters the kinetochore functions of Aurora B. *J Cell Biol* **199**:269-84 (* co-corresponding author)

82. **Musacchio A** (2012) Q&A: Andrea Musacchio. *Curr Biol* **22**:R552-4

83. Mariani L, Chiroli E, Nezi L, Muller H, Piatti S, **Musacchio A** & Ciliberto (2012) A Role of

the Mad2 Dimerization Interface in the Spindle Assembly Checkpoint Independent of Kinetochores. *Curr Biol* **22**:1900-8

84. Elkins JM, Santaguida S, **Musacchio A** & Knapp S (2012) Crystal Structure of Human Aurora B in Complex with INCENP and VX-680. *J Med Chem*. **55**:7841-8
85. Krenn V, Wehenkel A, Li X, Santaguida S & **Musacchio A** (2012) Structural analysis reveals features of the spindle checkpoint kinase Bub1-kinetochore subunit Knl1 interaction, *J Cell Biol* **196**:451-67
86. Deluca JG & **Musacchio A** (2012) Structural organization of the kinetochore-microtubule interface. *Curr Opin Cell Biol*. **24**:48-56
87. Varetti G, Guida G, Santaguida S, Chiroli E & **Musacchio A** (2011) Homeostatic control of mitotic arrest. *Mol. Cell* **44**: 710-720
88. **Musacchio A** (2011) Spindle assembly checkpoint: the third decade. *Philos Trans R Soc Lond B Biol Sci*. **366**:3595-604
89. Kwiatkowski N, Deng X, Wang J, Tan L, Villa F, Santaguida S, Huang HC, Mitchison T, **Musacchio A** & Gray NS (2012) Selective Aurora kinase inhibitors identified using a Taxol-induced checkpoint sensitivity screen. *ACS Chem Biol*. **7**:185-96.
90. Balzano D, Santaguida S, **Musacchio A*** & Villa F* (2011) A General Framework for Inhibitor Resistance in Protein Kinases. *Chem Biol* **18**:966-975 (*co-corresponding)
91. **Musacchio A** (2011) Travel notes from the equatorial circle. *Cell* **146**:499-501.
92. Mattiuzzo M, Vargiu G, Totta P, Fiore M, Ciferri C, **Musacchio A** & Degrassi F (2011) Abnormal kinetochore-generated pulling forces from expressing a N-terminally modified hec1. *PLoS One* **6**:e16307.
93. Screpanti E, De Antoni A, Alushin GM, Petrovic A, Melis T, Nogales E & **Musacchio A** (2011) Direct binding of Cenp-C to the Mis12 complex joins the inner and outer kinetochore. *Curr Biol* **21**:391-8
94. Maure JF, Komoto S, Oku Y, Mino A, Pasqualato S, Natsume K, Clayton L, **Musacchio A** & Tanaka TU (2011) The Ndc80 Loop Region Facilitates Formation of Kinetochore Attachment to the Dynamic Microtubule Plus End. *Curr Biol* **21**:207-13
95. Abrahams JP, Apweiler R, Balling R, Bertero MG, Bujnicki JM, Chayen NE, Chène P, Corthals GL, Dyląg T, Förster F, Heck AJ, Henderson PJ, Herwig R, Jehenson P, Kokalj SJ, Laue E, Legrain P, Martens L, Migliorini C, **Musacchio A**, Podobnik M, Schertler GF, Schreiber G, Sixma TK, Smit AB, Stuart D, Svergun D & Taussig MJ (2010) "4D Biology for Health and Disease" Workshop Report. *N Biotechnol* **28**:291-3
96. Alexander J, Lim D, Joughin BA, Hegemann B, Hutchins JR, Ehrenberger T, Ivins F, Sessa F, Hudecz O, Nigg EA, Fry AM, **Musacchio A**, Stukenberg PT, Mechtler K, Peters JM, Smerdon SJ & Yaffe MB (2011) Spatial exclusivity combined with positive and negative selection of phosphorylation motifs is the basis for context-dependent mitotic signaling. *Sci Signal.* **4**:ra42.
97. Perrakis A, **Musacchio A**, Cusack S & Petosa C (2011) Investigating a macromolecular complex: The toolkit of methods. *J Struct Biol* **175**:106-12
98. Santaguida S, Vernieri C, Villa F, Ciliberto A & **Musacchio A** (2011) Evidence that Aurora B is implicated in spindle checkpoint signalling independently of error correction. *EMBO J* **30**:1508-19
99. Maspero E, Mari S, Valentini E, **Musacchio A**, Fish A, Pasqualato S & Polo S. (2011) Structure of the HECT:ubiquitin complex and its role in ubiquitin chain elongation.

EMBO Rep **12**:342-9

100. Alushin GM, Ramey VH, Pasqualato S, Ball DA, Grigorieff N, **Musacchio A** & Nogales E. (2010) The Ndc80 kinetochore complex forms oligomeric arrays along microtubules. *Nature* **467**:805-10

101. **Musacchio A** (2010) Surfing chromosomes (and Survivin). *Science* **330**:183-4

102. Petrovic A, Pasqualato S, Dube P, Krenn V, Santaguida S, Cittaro D, Monzani S, Massimiliano L, Keller J, Tarricone A, Maiolica A, Stark H & **Musacchio A** (2010) The MIS12 complex is a protein interaction hub for outer kinetochore assembly. *J Cell Biol* **190**:835-52

103. **Musacchio A** (2010) Cell cycle: deconstructing tension. *Curr Biol* **20**:R634-7

104. Screpanti E, Santaguida S, Nguyen T, Silvestri R, Gussio R, **Musacchio A**, Hamel E & De Wulf P (2010) A screen for kinetochore-microtubule interaction inhibitors identifies novel antitubulin compounds. *PLoS One* **5**:e11603

105. Santaguida S, Tighe A, D'Alise AM, Taylor SS & **Musacchio A** (2010) Dissecting the role of MPS1 in chromosome biorientation and the spindle checkpoint through the small molecule inhibitor reversine. *J Cell Biol* **190**:73-87

106. Hewitt L, Tighe A, Santaguida S, White AM, Jones CD, **Musacchio A**, Green S & Taylor SS. (2010) Sustained Mps1 activity is required in mitosis to recruit O-Mad2 to the Mad1-C-Mad2 core complex. *J Cell Biol* **190**:25-34

107. Civril F, Wehenkel A, Giorgi FM, Santaguida S, Di Fonzo A, Grigorean G, Ciccarelli FD & **Musacchio A** (2010) Structural analysis of the RZZ complex reveals common ancestry with multisubunit vesicle tethering machinery. *Structure* **18**:616-26

108. Villa F, Capasso P, Tortorici M, Forneris M, de Marco A, Mattevi A & **Musacchio A** (2009) Crystal structure of the catalytic domain of Haspin, an atypical kinase implicated in chromatin organization. *PNAS* **106**:20204-9

109. Nezi L & **Musacchio A** (2009) Sister chromatid tension and the spindle assembly checkpoint. *Curr Opin Cell Biol* 21(6):785-95

110. Trazzi S, Perini G, Bernardoni R, Zoli M, Reese JC, **Musacchio A** & Della Valle G (2009) The C-terminal domain of CENP-C displays multiple and critical functions for mammalian centromere formation. *PLoS ONE* **4**:e5832

111. Santaguida S & **Musacchio A** (2009) The life and miracles of kinetochores. *EMBO J* **28**:2511-31

112. Demoe JH, Santaguida S, Daum JR, **Musacchio A**, Gorbsky GJ (2009) A High Throughput, Whole Cell Screen for Small Molecule Inhibitors of the Mitotic Spindle Checkpoint Identifies OM137, a Novel Aurora Kinase Inhibitor. *Cancer Res* **69**:1509-16

113. Simonetta M, Manzoni R, Mosca R, Mapelli M, Massimiliano L, Vink M, Novak B, **Musacchio A*** & Ciliberto A* (2009) The influence of catalysis on Mad2 activation dynamics. *PLoS Biology* **7**, e10 (*corresponding authors)

114. Amabile G, D'Alise AM, Iovino M, Jones P, Santaguida S, **Musacchio A**, Taylor S, Cortese R (2009) The Aurora B kinase activity is required for the maintenance of the differentiated state of murine myoblasts. *Cell Death Differ* **16**:321-30

115. Civril F & **Musacchio A** (2008) Spindly attachments. *Genes Dev* **22**:2302-7

116. Varetti G & **Musacchio A** (2008) The spindle assembly checkpoint. *Curr Biol* 18:R591-5

117. Girdler F, Sessa F, Patercoli S, Villa F, **Musacchio A** & Taylor S (2008) Molecular basis of drug resistance in aurora kinases. *Chem Biol*. **15**:552-62

118. Ciferri C, Pasqualato S, Screpanti E, Varetti G, Santaguida S, Dos Reis G, Maiolica A, Polka J, De Luca JG, De Wulf P, Salek M, Rappsilber J, Moores CA, Salmon ED & **Musacchio A** (2008) Implications for kinetochore-microtubule attachment from the structure of an engineered Ndc80 complex. *Cell* **133**, 427-439

119. D'Alise AM, Amabile G, Iovino M, Di Giorgio FP, Bartiromo M, Sessa F, Villa F, **Musacchio A** & Cortese R (2008) Reversine, a novel Aurora kinases inhibitor, inhibits colony formation of human acute myeloid leukemia cells. *Mol Cancer Ther* **7**,1140-9

120. Andersen CB, Wan Y, Chang J, Riggs B, Lee C, Liu Y, Sessa F, Villa F, Kwiatkowski N, Suzuki M, Nallan L, Heald R, **Musacchio A** & Gray NS (2008) Discovery of Selective Aminothiazole Aurora Kinase Inhibitors. *ACS Chem Biol* **3**, 180-9

121. Mapelli M, Massimiliano L, Santaguida S & **Musacchio A** (2007) The Mad2 Conformational Dimer: Structure and Implications for the Spindle Assembly Checkpoint. *Cell* **131**, 730-43

122. Derewenda U, Tarricone C, Choi W-C, Cooper DR, Lukasik S, Perrina F, Tripathy A, Kim M-H, Cafiso DS, **Musacchio A*** & Derewenda ZS* (2007) The structure of the coiled-coil domain of Ndel1 and the basis of its interaction with Lis1, the causal protein of Miller-Dieker lissencephaly. *Structure* **15**, 1467-81 (*corresponding authors)

123. Maiolica A, Cittaro D, Borsotti D, Sennels L, Ciferri C, Tarricone C, **Musacchio A** & Rappsilber J. (2007) Structural analysis of multi-protein complexes by cross-linking, mass spectrometry and database searching. *Mol Cell Proteomics* **6**, 2200-11

124. Mapelli M & **Musacchio A** (2007) MAD contortions: conformational dimerization boosts spindle checkpoint signaling. *Curr Op Struct Biol* **17**, 716-725

125. Taylor SS, Hardwick KG, Sawin KE, Biggins S, Piatti S, Khodjakov A, Rieder CL, Salmon ED & **Musacchio A** (2007) Comment on "A centrosome-independent role for gamma-TuRC proteins in the spindle assembly checkpoint". *Science* **316**, 982

126. Ciferri C, **Musacchio A** & Petrovic A (2007) The Ndc80 complex: Hub of kinetochore activity, *FEBS Lett.* **581**, 2862-9.

127. Plyte S & **Musacchio A** (2007) PLK1 Inhibitors: Setting the Mitotic Death Trap. *Curr Biol* **17**, R280-3.

128. **Musacchio A** & Salmon ED (2007) The spindle assembly checkpoint in space and time. *Nature Rev Mol Cell Biol* **8**, 379-93

129. DeLuca JG, Gall WE, Ciferri C, Cimini D, **Musacchio A** & Salmon ED (2006) Kinetochore microtubule dynamics and attachment stability are regulated by Hec1. *Cell* **127**, 969-82

130. Nezi L, Rancati G, De Antoni A, Pasqualato S, Piatti S & **Musacchio A** (2006) Accumulation of Mad2-Cdc20 complex during spindle checkpoint activation requires binding of open and closed conformers of Mad2 in Saccharomyces cerevisiae. *J Cell Biol* **174**, 39-51

131. Vink M, Simonetta M, Transidico P, Ferrari K, Mapelli M, De Antoni A, Massimiliano L, Ciliberto A, Faretta M, Salmon ED & **Musacchio A** (2006) In vitro FRAP identifies the minimal requirements for Mad2 kinetochore dynamics. *Curr Biol* **16**, 755-66

132. Mapelli M**,** Filipp FV, Rancati G, Massimiliano L, Nezi L, Stier G, Hagan RS, Confalonieri S, Piatti S, Sattler M & **Musacchio A** (2006) Determinants of conformational dimerization of Mad2 and its inhibition by p31(comet) *EMBO J* **25**, 1273-8

133. Penengo L, Mapelli M, Murachelli AG, Confalonieri S, Magri L, **Musacchio A**, Di Fiore PP, Polo S & Schneider TR (2006) Crystal Structure of the Ubiquitin Binding

Domains of Rabex-5 Reveals Two Modes of Interaction with Ubiquitin *Cell* **124**, 1183-1195

134. Mesngon MT, Tarricone C, Hebbar S, Guillotte AM, Lanier L, **Musacchio A**, King SJ & Smith DS (2006) Limited activation of cytoplasmic dynein ATPase by Lis1 – localized stimulation? *J Neurosci* **15**, 2132-2139

135. Ahn JS, Radhakrishnan ML, Mapelli M, Choi S, Tidor B, Cuny GD, **Musacchio A**, Yeh LA & Kosik KS. (2005) Defining Cdk5 Ligand Chemical Space with Small Molecule Inhibitors of Tau Phosphorylation. *Chem Biol* **12**, 811-823

136. Ciferri C, De Luca J, Monzani S, Ferrari Karin, Ristic D, Wyman C, Stark H, Kilmartin J, Salmon ED & **Musacchio A** (2005) Architecture of the human Hec1/Ndc80 complex, a critical constituent of the outer kinetochore, *J Biol Chem* **280**, 29088-29095

137. De Antoni A, Sala V & **Musacchio A** (2005) Explaining the oligomerization properties of the spindle assembly checkpoint protein Mad2, *Philos Trans R Soc Lond B Biol Sci* **360**, 637-48

138. Lacy ER, Wang Y, Post J, Nourse A, Webb W, Mapelli M, **Musacchio A**, Siuzdak G & Kriwacki RW (2005) Molecular Basis for the Specificity of p27 Toward Cyclin-dependent Kinases that Regulate Cell Division, *J Mol Biol* **349**, 764-73

139. Sessa F, Mapelli M, Ciferri C, Tarricone C, Areces LB, Schneider TR, Stukenberg PT & **Musacchio A** (2005) Mechanism of Aurora-B activation by INCENP and inhibition by Hesperadin, *Mol Cell* **18**, 379-391

140. De Antoni A, Pearson CG, Cimini D, Canman J, Sala V, Nezi L, Mapelli M, Sironi L, Faretta M, Salmon ED & **Musacchio A** (2005) The Mad1/Mad2 Complex as a Template for Mad2 Activation in the Spindle Assembly Checkpoint, *Curr. Biol.* **15**, 214-225

141. Mapelli M, Massimiliano L, Crovace C, Seeliger MA, Tsai LH, Meijer L & **Musacchio A** (2005) Mechanism of CDK5/p25 Binding by CDK Inhibitors. *J Med. Chem.* **48**, 671-679

142. Tarricone C, Perrina F, Monzani F, Massimiliano L, Kim M-H, Derewenda ZS, Knapp S, Tsai L-H & **Musacchio A** (2004) Coupling PAF signaling to dynein regulation: structure of LIS1 in complex with PAF-acetylhydrolase, *Neuron* **44**, 809-821

143. Steensgaard P, Garrè M, Muradore I, Transidico P, Nigg E, Kitagawa K, Earnshaw WC, Faretta M & **Musacchio A**, (2004) Sgt1 is required for human kinetochore assembly, *EMBO Rep* **5**, 626-631

144. Polychronopoulos P, Magiatis P, Skaltsounis AL, Myrianthopoulos V, Mikros E, Tarricone A, **Musacchio A**, Roe SM, Pearl L, Leost M, Greengard P & Meijer L (2004) Structural Basis for the Synthesis of Indirubins as Potent and Selective Inhibitors of Glycogen Synthase Kinase-3 and Cyclin-Dependent Kinases. *J Med Che.* **12**, 935-946

145. Ahn JS, **Musacchio A**, Mapelli M, Ni J, Scinto L, Stein R, Kosik KS & Yeh L-A (2004) Development of an Assay to Screen for Inhibitors of Tau Phosphorylation by Cdk5, *J Biomol Screen*, **9**, 122-131

146. Meijer L, Skaltsounis A-L, Magiatis P, Polychronopoulos P, Knockaert M, Leost M, Ryan XP, Vonica CA, Brivanlou A, Dajani R, Crovace C, Tarricone C, **Musacchio A**, Roe SM, Pearl L & Greengard P (2003) GSK-3 selective inhibitors derived from Tyrian purple indirubins, *Chem Biol*, **10**, 1255-1266

147. Mapelli M & **Musacchio A** (2003) The Structural Perspective on CDK5, *NeuroSignals* **12**:164-72

148. Sironi L, Mapelli M, Knapp S, De Antoni A, Jeang K-T & **Musacchio A** (2002) Structure of the tetrameric Mad1-Mad2 core complex: implications of a 'safety belt' binding mechanism for the spindle checkpoint, *EMBO J*, **21**, 2496-2506

149. **Musacchio A** (2002) How SH3 domains recognize proline, *Adv Protein Chem* **61**, 211-68

150. **Musacchio A** & Hardwick K (2002) The spindle checkpoint: structural insights into dynamic signalling, *Nat Rev Mol Cell Biol,* **10**, 731-41

151. Fraschini R, Beretta A, Sironi L, **Musacchio A**, Lucchini G & Piatti S (2001) Bub3 interaction with Mad2, Mad3 and Cdc20 is mediated by WD40 repeats and does not require intact kinetochores, *EMBO J,* **20**, 6648-6659

152. Sironi L, Melixetian M, Faretta M, Prosperini E, Helin K & **Musacchio A** (2001) Mad2 binding to Mad1 and Cdc20, rather than oligomerization, is required for the spindle checkpoint, *EMBO J* **20**, 6371-82

153. Tarricone C, Dhavan R, Peng J, Areces L, Tsai L-H & **Musacchio A** (2001) Structure and regulation of the CDK5-p25 complex, *Mol Cell* **8**, 657-669

154. Orrico A, Galli L, Falciani M, Bracci M, Cavaliere ML, Rinaldi MM, **Musacchio A** & Sorrentino V (2000) A mutation in the pleckstrin homology (PH) domain of the FGD1 gene in an Italian family with faciogenital dysplasia (Aarskog-Scott syndrome) *FEBS Lett.* **478**, 216-220

155. Bernardi L, Vitale G, Montecucco C & **Musacchio A** (2000) Expression, crystallisation, and preliminary X-ray diffraction analysis of recombinant Bacillus Anthracis Lethal Factor *Acta Cryst.* **D56**, 1449-1451

156. Kang H, Freund C, Duke-Cohan JS, **Musacchio A**, Wagner G & Rudd CE (2000) SH3 domain recognition of a proline-independent tyrosine-based RKxxYxxY motif in immune cell adaptor SKAP55 *EMBO J* **19** 2889-2899

157. Mongiovi AM, Romano PR, Panni S, Mendoza M, Wong WT, **Musacchio A**, Cesareni G & Di Fiore PP (1999) A novel peptide-SH3 interaction, *EMBO J* **18**, 5300-5309

158. ***Musacchio A**, *Smith C, Roseman A, Harrison SC, Kirchhausen T & Pearse B (1999) Functional organization of clathrin in coats: combining electron cryomicroscopy and X-ray crystallography, *Mol Cell* **3**, 761-770 (*Equal contribution)

159. *TerHaar E, ***Musacchio A**, Harrison, SC & Kirchhausen T (1998) Atomic structure of clathrin: a beta-propeller terminal domain joins an alpha-zig-zag linker, *Cell* **95**, 563-573 (*Equal contribution)

160. Barrett T, Xiao B, Dodson EJ, Dodson G, Ludbrook SB, Nurmahomed K, Gamblin SJ, **Musacchio A**, Smerdon SJ & Eccleston JF (1997) The structure of the GTPase-activating domain from p50rhoGAP *Nature* **385**, 458-461

161. **Musacchio A**, Cantley LC & Harrison SC (1996) Crystal structure of the Bcr-homology domain from phosphoinositide 3-kinase p85alfa subunit *Proc Natl Acad Sci USA* **93**, 14373-14378

162. Viguera AR, Arrondo JL, **Musacchio A**, Saraste M & Serrano L (1994) Characterization of the interaction of proline-rich peptides with five different SH3 domains *Biochemistry* **33**, 10925-10933

163. **Musacchio A**, Saraste M & Wilmanns M (1994) High-resolution crystal structures of tyrosine kinase SH3 domains complexed with proline-rich peptides *Nature Struct Biol* **1**, 546-551

164. Macias, M., **Musacchio A**, Ponstingl H, Nilges M, Saraste M & Oschkinat H (1994) Structure of the PH domain from β-spectrin *Nature* **369**, 675-677

165. Saraste M & **Musacchio A** (1994) Backwards and forwards binding *Nature Struct Biol* **1**, 835-837

166. MacDonald RI, **Musacchio A**, Holmgren RA & Saraste M (1994) Invariant tryptophan at a shielded site promotes folding of the conformational unit of spectrin *Proc Natl Acad Sci USA* **91**, 1299-1203

167. Gibson TJ, Hyvönen M, **Musacchio A**, Saraste M & Birney E (1994) PH domain: the first anniversary *TIBS* **19**, 349-353

168. **Musacchio A**, Wilmanns M & Saraste M (1994) Structure and function of the SH3 domain *Prog Biophys Molec Biol* **61**, 283-297

169. Noble MEM, **Musacchio A**, Saraste M, Courtneidge SA & Wierenga RK (1993) Crystal structure of the SH3 domain in human Fyn. Comparison of the three-dimensional structures of SH3 domains in tyrosine kinases and spectrin *EMBO J* **12**, 2617-2624

170. Van der Oost J, **Musacchio A**, Pauptit RA, Ceska TA, Wierenga RK & Saraste M (1993) Crystallization and preliminary X-ray Analysis of the Periplasmic Fragment of CyoA-a Subunit of the E.coli Cytochrome o complex *J Mol Biol* **229**, 794-796

171. **Musacchio A**, Gibson T, Rice P, Thompson J & Saraste M (1993) The PH domain: a common piece in the structural patchwork of signalling proteins *TIBS* **18**, 343-348

172. **Musacchio A**, Noble M, Pauptit R, Wierenga R & Saraste M (1992) Crystal structure of a Src-homology 3 (SH3) domain *Nature* 359, 851-854

173. **Musacchio A**, Gibson T, Lehto V-P & Saraste M (1992) SH3-an abundant protein domain in search of a function *FEBS Lett* 307, 55-61 (Review article)

174. Van der Oost J, Lappalainen P, **Musacchio A**, Warne A, Lemieux L, Rumbley J, Gennis RB, Aasa R, Pascher T, Malstrøm BG & Saraste M (1992) Restoration of a lost metal-binding site: construction of two different copper sites into a subunit of the *E. coli* cytochrome o quinol oxidase complex *EMBO J* **11**, 3209-3217

175. Felici F, Castagnoli L, **Musacchio A**, Jappelli R & Cesareni G (1991) Selection of antibody ligands from a large library of oligopeptides expressed on a multivalent exposition vector *J Mol Biol* **222**, 301-330

Monographs

Musacchio A (1995) Crystal structures of SH3 domains and their ligand complexes, Ph.D Thesis, University Of Heidelberg, 150 pp.

Musacchio A (2001) SH3 domains, in Encyclopedia of Molecular Medicine, J. Wiley and Sons Publ.