**Prof. Jordan H. Chill - Curriculum Vitae (December 2020)**

**1. Personal Data**

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| **Place of Birth:** Boston, MA, USA | **Nationality:** Israeli-US dual citizenship |
| **Family Status:** Married (1992) +3 | **Website:** <http://ch.biu.ac.il/chill> |

**2.** **Education, Certificates and Degrees**

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| **From-To** | **Institute** | **Area of Specialty** | **Degree** |
| 2004-2007 | Lab of Chemical Physics, NIH, USA. **Advisor:** Dr. Adriaan Bax | NMR structure and dynamics of the KcsA potassium channel | EMBO Postdoctoral Fellow |
| 1998-2004 | Weizmann Institute, Rehovot, Israel. **Advisor**: Prof. J. Anglister | Structural Biology: NMR structure of the human IFN receptor | PhD, *summa cum laude* |
| 1995-1998 | Tel-Aviv University, Israel | Business Administration | MBA, *cum laude* |
| 1988-1991 | Tel-Aviv University, Israel | Chemistry | BSc, *summa* *cum laude* |

**3.** **Current Positions**

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| **From-To** | **Institute** | **Area of Specialty** | **Degree** |
| 2014-present | Bar-Ilan University | Chemistry | Associate Professor |
| 2007-2014 | Bar-Ilan University | Chemistry | Assistant Professor |

**4.** **Main Research Interests and Scientific Activities** (brief summary; for details see next section)

* NMR-based approach to protein structural biology: structure-function relations in biologically-important systems, protein-protein interactions with biomedical/pharmaceutical implications
* Membrane-associated proteins: structure, dynamics and function, ligand-channel interactions, transmembrane protein-protein interactions
* Intrinsically disordered proteins – NMR methods for backbone assignment, transient structure, folding events, development of methods for studying structural propensities in IDPs
* Structural studies of aggregation-prone proteins and mechanisms of aggregation inhibition

**5.** **Administrative Positions Held**

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| **From-To** | **Position** |
| 2019-present | Vice-Chair Department of Chemistry |
| 2019-2020 | University committee for establishing a youth-program center |
| 2018-present | Departmental teaching committee |
| 2015-2018 | PhD Committee Board, member |
| 2011-2014 | Departmental Public Relations Committee, Head |
| 2009-2010 | Head, departmental self-evaluation team for Council of Higher Education accreditation |
| 2008-2017 | Steering committee of the Biophysics program at BIU |

**6. Supervision of Graduate Students and Post-Doctoral Fellows**

Currently supervising 1 post-doctoral fellows, 5 PhD students and 1 MSc students

Overall 2007-present: 4 post-doctoral fellow, 13 PhD students and 7 MSc students

**7.** **Other Activities**

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| **From-To** | **Activity** |
| 2017 | FEBS satellite meeting on IDPs – Organizer (with Prof. Dana Reichmann) |
| 2017 | 82nd Israel Chemical Society meeting, member of Organizing Committee |
| 2015-2019 | COST Action BM1405 – Non-Globular Protein Network – member of Management Committee |
| 2015 | Israel Society for Biochemistry and Molecular Biology, Organizer of annual meeting (with Prof. Masha Niv |
| 2011-2018 | Coordinator of “Chemistry-for-High-Schools” project, Dept. of Chemistry, Bar Ilan University |
| 2010 | Organizing committee and Co-Chair– 1st EAST-NMR International conference, BIU, June 2010 |

**8. Funding (last 5 years)**

| **Year** | **Funding Agency** | **Research Topic** | **Amount** |
| --- | --- | --- | --- |
| 2014-2018 | Binational Israel-US Foundation | Channel-toxin complexes reveal the mechanism of KcsA inhibition | 190,000 USD  60% Chill group |
| 2016-2019 | Israel Science Foundation | Affinity and selectivity in toxin inhibition of Kv1 potassium channels investigated by nanodisc technology | 160,000 USD |
| 2016-2019 | ISF-NCSF (China-Israel) | The hepatitis C virus envelope glycoprotein dimerization as a model for helix-helix interactions in membrane proteins | 280,000 USD |
| 2018-2022 | Binational Israel-US Foundation | The role of toxin dynamics in molecular recognition between KcsA and its inhibitors | 243,000 USD  60% Chill group |
| 2018-2021 | M. of Science and Technology | Cyclic peptides as novel therapeutics for LC amyloidosis: structure-based design and determination of efficacy | 300,000 USD  50% Chill group |
| 2019-2023 | Israel Science Foundation | Structural and mechanistic aspects of binding, folding and signaling of WIP, a disordered multi-functional polypeptide | 360,000 USD |

**9. Teaching Experience**

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| **Years** | **Course title** | **Institute** |
| 2007-present | Inorganic Chemistry (undergraduate course) | Bar Ilan University |
| 2007-present | Magnetic Resonance (graduate course) | Bar Ilan University |
| 2008-2019 | Biomaterials and Biopolymers (undergraduate course) | Bar Ilan University |
| 2018-present | Spectroscopy and Structure Determination | Bar Ilan University |
| 2019 | Statistics for Chemists | Bar Ilan University |

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**10. Miscellaneous**

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| **Years** | **Memberships** |
| 2008-present | Israel Chemistry Society, Israel Society for Biochemistry and Molecular Biology |
| 2015-present | Biophysical Society |
| **Years** | **Reviewer for Journals and Research Foundations** |
| 2009-present | Reviewer Nat. Commun., Biochemistry, JBNMR, Science Reports, ChemBioChem and more |
| 2010-2019 | Reviewer for research foundations, Israel Science Foundation, German-Israel Fund |
| **Date** | **Awards and Honors** |
| 2009,2018 | Award for excellence in teaching, Bar Ilan University |
| 2006 | FARE Award (Fellow Award for Research Excellency), NIH, Bethesda, MD, USA |
| 2004 | EMBO long-term post-doctoral fellowship |
| 2004 | Esther Helinger Memorial Prize for Ph.D. thesis |

**11. Peer-reviewed publications**

1. Samson, A.O.; **Chill, J.H**.; Rodriguez, E.; Scherf, T.; Anglister, J. NMR mapping and secondary structure determination of the major acetylcholine receptor alpha-subunit determinant interacting with alpha-bungarotoxin. *Biochemistry* **2001,** *40(18)*, 5464-5473.
2. **Chill, J.H**.; Nivasch, R.; Levy, R.; Albeck, S.; Schreiber, G.; Anglister, J. The human interferon receptor: NMR-based modeling, mapping of the IFN-α2 binding site, and observed ligand-induced tightening. *Biochemistry*. **2002**, *41(11)*, 3575-3585.
3. Yao, Y.; Wang, J.; Viroonchatapan, N.; Samson, A.O.; **Chill, J.H.**; Rothe, E.; Anglister, J.; Wang, Z.Z. The human interferon receptor: Yeast expression and NMR analysis of the extracellular domain of muscle nicotinic acetylcholine receptor alpha subunit. *J. Biol. Chem*. **2002**, *277(15)*, 12613-12621.
4. Samson, A.O.; Scherf, T.; Eisenstein, M.; **Chill, J.H**.; Anglister J. The mechanism for acetylcholine receptor inhibition by α-neurotoxins and species-specific resistance to a-bungarotoxin revealed by NMR. *Neuron*, **2002**, *35(2)*, 319-332.
5. **Chill, J.H**.; Quadt, S.R.; Levy, R.; Schreiber, G.; Anglister J. The human type I interferon receptor: NMR structure reveals the molecular basis of ligand binding. *Structure (Camb.)*, **2003**, *11(7)*, 791-802.
6. **Chill, J.H.\***; Quadt, S.R.; Anglister J. Backbone dynamics of the human type I interferon receptor, a representative α-helical cytokine receptor. *Biochemistry*, **2004**, *43(31)*, 10127-10137. (\*Corresponding author).
7. Rozen, O.; **Chill, J.H.**; Kessler, N.; Mester, B.; Sharon, M.; Zolla-Pazner, S.; Anglister J. Induced fit in HIV-neutralizing antibody complexes: evidence for alternative conformations of the gp120 V3 loop and the molecular basis for broad neutralization. *Biochemistry*, **2005**, *44(19)*, 7250-7258.
8. Samson, A.O.; **Chill, J.H.**; Anglister J. 2D-measurement of proton T1ρ relaxation in unlabeled proteins: Mobility changes in α-bungarotoxin upon binding of an acetylcholine receptor peptide. *Biochemistry*, **2005**, *44(32)*, 10926-10934.
9. **Chill, J.H.**; Louis, J.M.; Miller, C.; Bax A. NMR study of the tetrameric KcsA potassium channel in detergent micelles. *Protein Sci*, **2006**, *15(4)*, 684-698.
10. **Chill, J.H.**; Louis, J.M.; Baber, J.L.; Bax A. Measurement of 15N relaxation in the detergent-solubilized tetrameric KcsA potassium channel. *J. Biomol NMR*, **2006**, *36(2)*, 123-136.
11. Quadt-Akabayov, S.R.; **Chill, J.H.**; Levy, R.; Kessler, N.; Anglister J. Determination of the human type I interferon receptor binding site on human interferon α2 by cross saturation and an NMR-based model of the complex. *Protein Sci.*, **2006**, *15(11)*, 2656-2668.
12. Ying, J.; **Chill, J.H.**; Louis, J.M.; Bax A. Mixed-time parallel evolution and multiple quantum NMR experiments: sensitivity and resolution enhancement in heteronuclear NMR. *J. Biomol. NMR*, **2007**, *37(3)*, 195-204.
13. **Chill, J.H.**; Louis, J.M.; Delaglio, F.; Bax A. Local and global structure of the monomeric subunit of the potassium channel KcsA probed by NMR. *Biochim. Biophys. Acta* **2007**, *1768(12)*, 3260-3270.
14. **Chill, J.H.**\*; Naider, F.N. A solution NMR view of protein dynamics in the biological membrane. *Curr. Opin. Struc. Biol.* **2011**, 21, 627-633. (\*Corresponding author)
15. Kamnesky, G.; Shaked, H.; **Chill, J.H.\***; The distal C-terminal region of the KcsA potassium channel is a pH-dependent tetramerization domain. *J. Mol. Biol.* **2012**, 418(3-4), 237-247. (\*Corresponding author)
16. Novacek, J.; Haba, N.; **Chill, J.H.**; Zidek, L.; Sklenar, V.; 4D non-uniformly sampled HabCabCON/intra-HabCabNCO experiments for the sequential assignment and chemical shift analysis of intrinsically disordered proteins. *J. Biomol. NMR* **2012,** 53(2), 139-148.
17. Bermel, W.; Bertini, I.; **Chill, J.H.**; Felli, I.C.; Haba, N.Y.; Kumar, M.V.; Pierattelli, R. 13C-direct detection amino acid selective NMR experiments to simplify the assignment of IDPs. *ChemBioChem*, **2012**, 13(16), 2425-2432.
18. Guttman, C.; Davidov, G.; Shaked, H.; Ganguly, A.; Miller, J.F.; **Chill, J.H**.\*.; Zarivach, R.\* Characterization of the N-terminal domain of BteA: a Bordatella Type III secreted cytotoxic effector. *PLoS One*, **2013**, 8(1):e55650. (\*Corresponding authors).
19. Haba, N.Y.; Gross, R.; Novacek, J.; Shaked, H.; Zidek, L,; Barda-Saad, M.; **Chill, J.H.\*** NMR determines transient structure and dynamics in the disordered C-terminal domain of WASp interacting protein. *Biophyiscal J*. **2013**, 105(2), 481-493. (\*Corresponding author)
20. [Shapira, R](http://www.ncbi.nlm.nih.gov/pubmed?term=Shapira%20R%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Rudnick, S](http://www.ncbi.nlm.nih.gov/pubmed?term=Rudnick%20S%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Daniel, B](http://www.ncbi.nlm.nih.gov/pubmed?term=Daniel%20B%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Viskind, O](http://www.ncbi.nlm.nih.gov/pubmed?term=Viskind%20O%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Aisha, V](http://www.ncbi.nlm.nih.gov/pubmed?term=Aisha%20V%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Richman, M](http://www.ncbi.nlm.nih.gov/pubmed?term=Richman%20M%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Ayasolla, K.R](http://www.ncbi.nlm.nih.gov/pubmed?term=Ayasolla%20KR%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Perelman, A](http://www.ncbi.nlm.nih.gov/pubmed?term=Perelman%20A%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [**Chill, J.H**](http://www.ncbi.nlm.nih.gov/pubmed?term=Chill%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=23984871)**.**; [Gruzman, A](http://www.ncbi.nlm.nih.gov/pubmed?term=Gruzman%20A%5BAuthor%5D&cauthor=true&cauthor_uid=23984871).; [Rahimipour, S](http://www.ncbi.nlm.nih.gov/pubmed?term=Rahimipour%20S%5BAuthor%5D&cauthor=true&cauthor_uid=23984871). Multifunctional cyclic D,L-α-peptide architectures stimulate non-insulin dependent glucose uptake in skeletal muscle cells and protect them against oxidative stress. J. Med. *Chem*. **2013**, 56(17), 6709-6718.
21. Zazrin, H.; Shaked, H.; **Chill, J.H.**\* Architecture of the hepatitis C virus E1 glycoprotein transmembrane domain studied by NMR. *BBA-Biomembranes*, *BBA-Biomembranes*, **2014**, 1838, 784-792. (\*Corresponding author)
22. Guttman, C.; Davidov, G.; Yahalom, A.; Shaked, H.; Kolusheva, S.; Bitton, R.; **Chill, J.H**.\*; Zarivach, R.\* BtcA, a class IA type III chaperone, interacts with the BteA N-terminal domain through a globular/non-globular mechanism. *PLoS One,* ***2013****, 8(12), e81557.* (\*Corresponding authors)
23. Fried, S.; Eliyaho, S.; Pauker, H.M.; Noy, E.; Reicher, B.; **Chill, J.H.** and Mira Barda-Saad**.** Triple color-FRET analysis reveals a dynamic conformational change within the actin regulating WIP:WASp complex. *Science Signaling,* **2014**, 7(331):ra60. doi: 10.1126/scisignal.2005198.
24. Kamnesky, G.; Hirschhorn, O.; Shaked, H.; Chen, J.; Yao, L.; **Chill, J.H**.\* Molecular determinants of tetramerization in the KcsA cytoplasmic domain. *Protein Science*, **2014**, 23(10):1403-1416. (\*Corresponding author)
25. Elazari-Shalom, H.; Zazrin-Grynspan, H.; Shaked, H.; **Chill, J.H.\*** An NMR study of the transmembrane domain of hepatitis C virus E2 glycoprotein. *BBA Biomembranes*, **2014**, 1838(11):2919-2128. (\*Corresponding author)
26. Sher, I.; Chang, S.-C.; Li, Y.; Chhabra, S.; Palmer III, A.G.;.Norton, R.S. and **Chill, J.H.**\* Conformational flexibility in the binding surface of the potassium channel blocker ShK. *ChemBioChem*, **2014**, 15(16):2402-2410. **Featured on cover.** (\*Corresponding author)
27. Elazari-Shalom, H.; Shaked, H.; Esteban-Martin, S.; Salvatella, X.; Barda-Saad, M.; **Chill, J.H.\*** New insights into the role of the disordered WIP N-terminal domain revealed by NMR structural characterization. *FEBS J.*, **2015**, 282(4), 700-714.
28. Reytblat, I.; Keinan-Adamsky, K.; **Chill, J.H.;** Gottlieb, H.; Gedanken, A.; Goobes, G. NMR studies of DNA microcapsules prepared using sonochemical methods. *Phys. Chem. Chem. Phys.* **2015**, 17(3), 2235-2240.
29. **Chill, J.H.**; NMR of proteins: Eavesdropping on molecular events. *Isr. Chem. Eng*. **2015**, 1, 13-21
30. Meirovitch, E.: Tchaicheeyan, O.; Sher, I.; Norton, R.S.; **Chill, J.H.** Structural dynamics of the potassium channel blocker ShK: SRLS analysis of 15N relaxation. *J. Phys. Chem. B* **2015**, 119, 15130-15137.
31. Zhao, R.; Dai, H.; Mendelman, N.; Cuello, L.; **Chill, J.H.;** Goldstein, S. Designer and natural peptide toxin blockers of the KcsA potassium channel identified by phage-display. *Proc. Natl. Acad. Sci.* **2015***,* 112(50), E7013-7021.
32. Chemerovski-Glikman, M.; Rozentur-Shkop, E.; Richman, M.; Grupi, A.; Getler, A.; Cohen, H.Y.; Shaked, H.; Wallin, C.; Wärmländer, S.K.; Haas, E.; Gräslund, A.; **Chill, J.H.;** Rahimipour, S. Self-assembled cyclic D,L-α-peptides as generic conformational inhibitors of α-synuclein aggregation and toxicity. *Chemistry* **2016**, 22(40), 14236-14246.
33. Barber-Zucker, S.; Uebe, R.; Davidov, G.; Navon, Y.; Sherf, D.; **Chill, J.H.;** Kass, I.; Bitton, R.; Schüler, D.; Zarivach R. Disease-homologous mutation in the cation diffusion facilitator protein MamM causes single-domain structural loss and signifies its importance. *Sci. Rep.* **2016**, 6, 31933.
34. Rozentur-Shkop, E.; Goobes, G.; **Chill, J.H.** A J-modulated protonless NMR experiment characterizes the conformational ensemble of the intrinsically disordered protein WIP. *J. Biomol NMR* **2016**, 66(4), 243-257s.
35. Levy, A.R.; Nissim, M.; Mendelman, N.; **Chill, J.H.;** Ruthstein, S. The Ctr1 intracellular loop is involved in the copper transfer mechanism to the Atox1 metallochaperone. *J. Phys. Chem. B.* **2016**, 120(48), 12334-12345.
36. Halle-Bikovski, A.; Fried, S.; Biber, G.; Rozentur-Shkop, E.; Joseph, N.; Shaked, H.; Barda-Saad, M.† **Chill, J.H.**† New structural insights into formation of the key actin regulating WIP-WASp complex determined by NMR and molecular imaging. *ACS Chem. Biol.* **2018**, 13(1), 100-109.
37. Belostozky, A.; Richman, M.; Lisiansky, E.; Tovchygrechko, A.; **Chill, J.H.;** Rahimipour, S. Inhibition of tau-derived hexapeptide aggregation and toxicity by a self-assembled cyclic D,L-α-peptide conformational inhibitor. *Chem Commun (Camb)* **2018**, 54(47), 5890-5893.
38. Halle-Bikovski, A.; Rozentur-Shkop, E.; Shaked, H.; Barda-Saad, M.† **Chill, J.H.**† From disordered polypeptide to functional regulator: a structural view of WASp-interacting protein and its complex with WASp in human T-cells. *Biophysical J.* **2018**, 114(3), 26a.
39. Baskin, M.; Zhu, H.; Qu, Z.-W.; **Chill, J.H.;** Grimme, S.; Maayan, G. Folding of unstructured peptoids and heterobimetallic peptoid complexes formation upon side chains-to-metal coordination. *Chem. Sci.* **2019**, doi: 10.1039/c8sc03616k.
40. Qasim. A.; Sher, I.; Hirschhorn, O.; Shaked, H.; Qasim, Z.; Ruthstein, S.; **Chill, J.H.** A KcsA cytoplasmic pH-gate investigated in lipoprotein nanodiscs**.** *ChemBioChem,*2019, doi: 10.1002/cbic.201800627
41. Sasson, E.; Kolitz-Domb, M.; **Chill, J.H.**; Margel, S. Engineering of durable antifog thin coatings on plastic films by UV-curing of proteinoid prepolymers with PEG-diacrylate monomers. *ACS Omega* 2019, 4(5), 9352-9360.
42. Yahalom, A.; Davidov, G.; Kolusheva, S.; Shaked, H.; Barber-Zucker, S.; Zarivach, R.† **Chill, J.H**.† Structure and membrane-targeting of a Bordetella pertussis effector N-terminal domain. *BBA-Biomembranes*, 2019, 1861(12):183054 (†Co-corresponding author).
43. **Chill, J.H.\*;** Qasim, A.; Sher, I.; Gross, R. NMR perspectives of the KcsA potassium channel in the membrane environment.*Isr J. Chem.*, 2019, 59(11-12), 1001-1013. (\*Corresponding author)
44. Zhao, R.; Dai, H.; Mendelman, N.; **Chill, J.H.**†; Goldstein, S.A.N†. Tethered peptide neurotoxins display two blocking mechanisms in the K+ channel pore as do their untethered analogues. *Sci. Adv.* 2020, 6(10), eaaz3439. (†Co-corresponding author)
45. Sokolik, C.G.; Qassem, N.; **Chill, J.H**. The disordered cellular multi-tasker WIP and its protein-protein interactions: a structural view. *Biomolecules* 2020, 10(7), 1084-1093.
46. Hadad, E.; Rudnick-Glick, S.; Grinberg, I.; Kolitz-Domb, M.; **Chill, J.H.**; Margel, S. Synthesis and characterization of poly-(RGD) proteinoid polymers and NIR fluorescent nanoparticles of optimal *d*,*l*-configuration for drug-delivery applications - in vitro study. *ACS Omega* 2020, 5(37), 23568-23577.

**Book chapters**

1. Samson, A.O.; Scherf, T.; Eisenstein, M.; **Chill, J.H.**; Anglister J. The mechanism for acetylcholine receptor inhibition by α-neurotoxins and species specific resistance to α-bungarotoxin revealed by NMR. Cholinergic mechanisms, function and dysfunction, **2004**, eds. Silman I., Soreq H., Anglister L., Michaelson D., Fisher A., p.45-54, Taylor & Francis group, UK.

**4. Lectures delivered in international scientific conferences**

| **Conference** | **Place and Date** | **Title of Lecture/Poster** |
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| *74th Israel Chemical Society Meeting* | Tel-Aviv, Israel, 2009 | Conformation and dynamics at the molecular hinge of the KcsA potassium channel (**Lecture, invited**) |
| *European Magnetic Resonance Meeting* | Dublin, Ireland, 2012 | NMR study of structure and dynamics in the intrinsically disordered C-terminal domain of WIP (**oral presentation**) |
| *25th International Conference of Magnetic Resonance in Biological Systems* | Lyon, France, 2012 | Combining NMR and sedimentation equilibrium for investigating oligomerization: a new view on KcsA pH-gating. (**Lecture, invited**) |
| *3rd EAST-NMR meeting* | Lasko, Slovenia, 2012 | A ‘divide and conquer’ NMR approach for studying structure and dynamics in the intrinsically disordered WIP (**Lecture, invited**) |
| *78th Israel Chemical Society Meeting* | Tel-Aviv, Israel, 2013 | NMR determines order and flexibility in polypeptide chains (**Lecture, invited**) |
| *9th Intl Parnas meeting: Proteins from birth to death* | Jerusalem, Israel, 2013 | Visualizing elusive molecular events using NMR methods (**Lecture, invited**) |
| *6th FISEB (ILANIT) Conference* | Eilat, Israel, 2014 | Disorder and structure in WASp-interacting protein shed light on its biological function (**Lecture, invited**) |
| *55th Experimental NMR Conference* | Boston, USA, 2014 | NMR observes disordered-to-ordered transitions in WASp-interacting protein (**oral presentation)** |
| *European Magnetic Resonance Meeting* | Prague, Czech Rep., 2015 | Conformational ensemble of intrinsically disordered WIP: biophysical insights from 13C-detected spectroscopy (**oral presentation**) |
| *27th International Conference of Magnetic Resonance in Biological Systems* | Kyoto, Japan, 2016 | Potassium channels in lipoprotein nanodiscs: insights into toxin inhibition and gating **(oral presentation)** |
| *62nd Biophysical Society meeting* | San Francisco, USA, 2018 | From disordered polypeptide to functional regulator: a structural view of WASp-interacting protein and its complex with WASp in human T cells. |