Personal details

Full Name	Roberto Alfredo Steiner
Place of Birth	Portogruaro (VE), Italy
Date of Birth	7th September 1969
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Current position

05/2021-now	Full Professor of Biochemistry, Dept. of Biomedical Sciences, University of Padova, Italy.
09/2018-now	Full Professor of Biomolecular Structure, Randall Centre for Cell and Molecular Biophysics, King's College London, UK. Since 05/2021 50% FTE.

Previous positions/Education

09/2014-08/2018	Reader (Associate Professor) in Biomolecular Structure, Randall Centre for Cell and Molecular Biophysics, King's College London, UK.
09/2011-08/2014	Senior Lecturer (Associate Professor), Randall Centre for Cell and Molecular Biophysics, King's College London, UK.
06/2006-08/2011	Lecturer (Assistant Professor), Randall Centre for Cell and Molecular Biophysics, King's College London, UK.
09/2004-12/2005	Postdoctoral fellow at the FIRC Institute of Molecular Oncology/European Institute of Oncology, Milan, Italy. Group of Prof. A. Musacchio.
04/2002-08/2004	Postdoctoral fellow at the York Structural Biology Laboratory - University of York, UK. Group of Dr. G.N. Murshudov.
04/2002	PhD in Macromolecular Crystallography - University of Groningen, the Netherlands. Group of Prof. B.W. Dijkstra.
09/1996-12/1997	Lieutenant in the Italian Navy. Naval Ammunition Factory - Aulla, Italy.
07/1996	Laurea in Chemistry (110/110), University of Padova, Italy.

Brief research overview

Research in my group is concerned with diverse aspects of protein structure and function, protein-ligand recognition as well as protein-protein interactions. My laboratory employs a multi-disciplinary approach involving state-of-the-art X-ray and neutron crystallography, cryo-EM, complementary biophysical techniques, and molecular biology to address fundamental and modern problems in biochemistry. My group has a long-standing interest in structural enzymology, particularly of oxygen-dependent systems. Over the years our work on mechanistic enzymology has been published in *PNAS*, *JACS*, *Angewandte Chemie Int Ed*, *JBC*, *EMBO J*. An important area of my research is also that of contractile and motile systems with work published in *Science*, *PNAS*, *JMB*, *Elife*. In particular, I am interested in the recognition and activation mechanisms of kinesin-cargo complexes. My lab has been the first to elucidate the structural basis for the most general mechanism of kinesin-1 recognition as well as an alternative one that is isoform specific. Additionally, I am one of the authors of the refinement software package *Refmac*5, one of the flagships of the macromolecular crystallography CCP4 suite and employed by users all around the world. As of now, the *Refmac*5 reference paper published in 2011 has been cited more than 6,000 times.

Funding history

In Italy (arrived mid-2021).

Progetti Eccellenza 2023 Fondazione Cassa Risparmio di Padova e Rovigo (CARIPARO). Project SERIO$_2$UOX “Complete description of cofactor-free biological oxidative catalysis at atomic resolution using state-of-the-art serial X-ray and neutron crystallography”, **value 240k Euros.**

PRIN2022 grant as Coordinator, project 2022ERB7SL “Molecular basis of kinesin-1 motor activation by light chain sequestration and it modulation in mitochondrial transport”, **value ~219k Euros (~125k Euros to Steiner)**. Other Units are UniMI (Clara De Palma) and UniBA (Antonio Carrieri).

PRIN2022-PNRRR grant as Unit-Lead, project P2022LSH5A “Predictive rationalization and manipulation of cargo recruitment by the regulatory light chains of the ubiquitous kinesin-1 motor protein”, **~229k Euros (~161k Euros to Steiner)**. Lead Unit is CNR-MI (Giulia Morra).

In UK.

Since 2006 more than £4.3M in research equipment grants and more than £2.7M in research grants.

10/2024-09/2028	CCP4/STFC 4-yr PhD studentship “Integrative refinement” (**value £130,632**, **Steiner PI**, Murshudov MRC-LMB Cambridge co-I).
01/2020-12/2024	Wellcome Trust cryo-EM equipment grant 206175/Z/17/Z "A London Consortium to establish a high resolution cryo-electron microscopy for research and training" (**value £3,000,000**, Zhang (Imperial College) PI - Freemont, Wigley, Meier, Speck (Imperial College), Morris, Vannini (Institute of Cancer Research), Gautel, **Steiner** (King’s College London), Pickersgill (Queen Mary) **co-Is**).
08/2022-07/2023	Biotechnology and Biology Research Council 21ALERT Mid-range equipment Initiative BB/W019329/1 "A cryo-electron microscope for structural biology (including single-particle and tomography) at KCL” **(value £1,000,000,** Bergeron PI – **Steiner co-I).**
10/2019-09/2023	CCP4/STFC 4-yr PhD studentship “Refinement of macromolecular structures using crystallographic neutron data” (**value £72,990**, **Steiner PI**, Murshudov MRC-LMB Cambridge co-I).
09/2018-08/2021	Biotechnology and Biology Research Council research grant BB/S000828/1 "Mechanistic basis for co-operativity in kinesin-1/cargo recognition" (**value £340,784**, **Steiner PI**).
07/2020-06/2021	Biotechnology and Biology Research Council 19ALERT Mid-range equipment Initiative BB/T01752X/1 "Isothermal titration calorimetry instrumentation for structural biology, biological mechanisms and drug discovery" (**value £193,698**, Conte PI – Barry, Bergeron, Burgoyne, De Nicola, Garnett, Gautel, Isaacson, Kampourakis, Malim, McDonnell, Mueller, Naglik, Pastore, Pfuhl, **Steiner co-Is**).
02/2017-05/2020	Biotechnology and Biology Research Council Research Grant BB/P000169/1 "The exact chemical identity of reactive intermediates in O_2-dependent uric acid biodegradation" (**value £325,935**, **Steiner PI** Rosta).
10/2016-12/2019	Institute Laue Langevin, Grenoble (ILL) competitive PhD studentship "Identification of the correct protonation states of reactive intermediates in urate oxidase catalysis" (**value €147,000**, **Steiner PI**, Blakeley co-I).

05/2014-04/2017	Biotechnology and Biology Research Council Research Grant BB/L006774/1 "Cargo recognition by kinesin-1 and its role in activation of transport" (**value £598,201**, Dodding PI, **Steiner co-I**).
09/2014-08/2017	British Heart Foundation Research Grant PG/14/46/30911 "Structure and protein-protein interactions of the Popeye domain containing proteins" (**value 17,000**, Brand PI, **Steiner co-I**).
06/2016-01/2017	British Heart Foundation Centre of Excellence pump-prime grant "Structural studies of Dkk3, a potential target for cardiovascular disease treatment" (**value £30,000**, **Steiner PI**, Xu co-I, started Aug. 2016 – ended Jan. 2017).
02/2012-01/2015	Biotechnology and Biology Research Council Research Grant BB/I020411/1 "Acceleration and control of spin-restricted oxygenation by cofactor-independent dioxygenases" (**value £353,228**, **Steiner PI**, Feb. started 2012 – ended Jan. 2015).
05/2011-04/2014	British Heart Foundation Research Grant PG/10/6728527 "A structural understanding of how the sarcomeric M-band works and is held together" (**value £198,639**, **Steiner PI**, Gautel co-I).
12/2010-01/2013	Industrial Grant Vifor International (Switzerland) “Evaluation of the chemical nature of the interaction between hepcidin and ferroportin” (**value £236,660**, McKie PI, **Steiner co-I**).
10/2009-04/2011	British Heart Foundation Centre of Excellence pump-prime grant "Biophysical studies of the Nox4 and Nox2 C-terminal domains" (**value £69,000**, Shah PI, **Steiner co-I**).
04/2009-03/2010	Royal Society grant "Structural studies of human tetherin" (**value £15,000**, **Steiner PI**, started Apr. 2009 – ended Mar. 2010).
08/2016-01/2017	British Heart Foundation Centre of Excellence pump-prime grant "Structural and functional analysis of obscurin" (**value £18,500**, Gautel PI, **Steiner co-I**).
03/2009-07/2010	Medical Research Council pump-prime grant " Chemical genetic investigation of RSK function in myocardium" (**value £45,000**, Avkiran PI, **Steiner co-I**).
09/2008-02/2009	Industrial Grant Vifor International (Switzerland) “Evaluation of the chemical nature of the interaction between hepcidin and ferroportin” (**value £65,000**, McKie PI, **Steiner co-I**).
02/2009-03/2009	Innovation China UK “Development of an expert system for optimized cell culture growth and protein production” (**value £9,000**, **Steiner PI**).
11/2006-10/2009	Wellcome Trust Multi-User Equipment Grant “Robotic crystallization facility at King’s College London” (**value £122,500**, Sutton PI, **Steiner**, Sanderson, Chen, Pickersgill **co-Is**).

Membership to scientific committees

2019-2023	Barts Charity Scientific Review Panel
2019-now	London Consortium for cryo-EM (LonCEM) management committee.
2019-2022	King's College London Strategic Steering Committee for the Centre of Ultrastructural Imaging.
2017-2019	CCP4 Executive Committee
2011-2014	Diamond Light Source User Working group for macromolecular crystallography

Grant reviewing activities

I have reviewed grant applications for UK funding bodies (Biotechnology and Biological Sciences Research Council, Medical Research Council) and international funding bodies (EU FP7, Italian Ministry of Research (MIUR and Rita Levi Montalcini Program for Young Researchers), Universita' dell'Insubria, Universita' di Bolzano, Czech Science Foundation).

Academic leadership and administration

2009-2021	Co-Director and Deputy Examination Board Chair of the Master in Research (MRes) Programme in "Molecular Biophysics for Medical Sciences".
2009-now	Member of selection panels for various internal and external academic positions. For example, 1 Lecturer position in cryo-EM and 1 Senior Lecturer position in cryo-EM (both filled) in 2019.
2015-now	Ad hoc member of selection panel for King's College London BBSRC PhD programme.
2016-2020	Careers & Employability Liaison (DCEL) for the Department of Biochemistry.
2012-2015	Probation mentor of Dr Maria Eugenia Sanz (Senior Lecturer). Probation successful.
2012	1 month visiting professorship (topic: macromolecular crystallography) at the University of Cagliari, Italy - PhD School in Physics (host Prof. Matteo Ceccarelli).
2011	Scientific organiser of CCP4 Study Weekend "Crystallographic Refinement, Model Building and Validation", Warwick, UK.

Teaching qualifications

2007-2009	Awarded the Postgraduate Certificate in Academic Practice (PGCAP) by the King's Learning
07/12/2107	Most recent training update for PhD supervisors.
27/04/2018	General Data Protection Regulation training.

Pastoral care

Since 2006 I have been personal tutor of more than 90 Undergraduate/Master students enrolled mostly in Biochemistry and Biomedical Sciences degrees. The role of personal tutor is taken very seriously at King's. A personal tutor is an academic member of staff who takes an active interest in a student's academic progress and university experience and is concerned for a student's general welfare. Over the years I have successfully dealt with a number of issues ranging from simple unsatisfactory outcomes to serious personal problems.

PhD and Master supervision

In Italy I am currently supervising two PhD students (Miss Elisa Peirano and Mr Michele Di Palma).
In UK, since 2006 I have been Primary Supervisor of five PhD students (Mr Stefano Pernigo (2007-2011), Miss Louise Saul (2007-2011), Miss Laura Fin (2011-2015), Miss Lindsay McGregor (2016-2020), Miss Lucrezia Catapano (2019-now)) and Second Supervisor of two PhD students (Miss Anneri Lamprecht (2012-2016), Miss Catherine Hubert (2013-2017)). Miss Lucrezia Catapano is in her 1st year and is progressing well. Miss Lindsay McGregor has submitted her PhD thesis at the end of March 2020 and will have her viva soon. All other students submitted their PhD thesis within the deadline and were awarded their PhD degree. I have also been project supervisor of one BBSRC 1st year rotation student (project approx. 6 months long): Miss Fiona Shilliday (2016 – later went on to complete her PhD at Birkbeck College). Additionally, I co-supervised the doctoral work of Miss Giulia Glorani (Doctoral Program in Biotechnology, Universita' di Verona) who spent 9 months in my laboratory in 2017-18.

I have been project supervisor (lab projects lasting typically 6-8 months) of 6 Master students (Miss Lucie Vyletova (2011 – went on to work as research scientist at the Institute of Cancer Research in London), Miss Helen Armes (2012 – went on to a PhD at the University of Sussex), Miss Mengjia Xu (2015 – went on to work in a biotech company in

China), Miss Anka Lucic (2016 – went on to do a PhD at the University of Oxford), Mr Conor Treacy (2017 – went on to do a PhD at King's College London in optical microscopy), Mr Samuel Lowden (2019 – currently training as scientific patent attorney)).

I have been Final Year project supervisor (lab projects lasting typically 2-3 months) of approx. 15 students in Biochemistry and Biomedical Sciences.

Editorial activities

Mar.2020-now	Appointed Commissioning Editor for Biology by the International Union of Crystallography (IUCr) Journals.
Sep.2016-now	Editorial Board Member for Molecular Biology of Scientific Reports, Nature Publishing Group.
2012	As Scientific Organiser of the 2011 CCP4 Study Weekend Meeting I acted as Guest Editor of the Proceedings of the CCP4 Study Weekend published in Acta Cryst. D (Biological Crystallography) in April 2012.

I routinely review manuscripts for several journals including: Nature Catalysis, Nature Chemical Biology, Nature Communications, JACS, PLOS Biology, PLOS One, J Biol Chem, J Mol Biol, J Inorg Biochem, Scientific Reports, Journal of Structural Biology, Acta Crystallogr. Section D Biol Crystallography, Acta Crystallogr. Section F Structural Biol Comms, Proteins, Future Medicinal Chemistry, Protein Engineering Design and Selection.

Innovation

- I am one of the co-proposers of the VMX (Versatile Microfocus Xtallography) beamline approved by the Diamond Light Source SAC for the final Phase III development stage. VMXm is a micro/nanofocus Macromolecular Crystallography (MX) beamline aimed at atomic structure determination in cases where the production of significant quantities of protein material and crystals is problematic. Budgeted investment: approx. £5M. VMX is now operational.
- In the past my group collaborated with the Swiss Pharma Vifor International (see grant list) on the chemical basis of interaction between the membrane receptor ferroportin and the hepcidin hormone. Within the framework of this agreement we have developed a fluorescence-based assay that is being utilised for ligand screening.

Selected seminars, conferences and workshops

Mar. 2020	Invited speaker at the Oxford University Scientific Society (oldest student-run science society in the world). *I was truly humbled by this invitation as this series has attracted some truly remarkable speakers including Nobel prize laureates.*
Oct. 2019	Invited seminar speaker at Pázmány Péter Catholic University, Budapest.
Feb. 2019	Keynote speaker at ESRF User Meeting 2019 - User Dedicated Symposium 1 - "ID29: Tunable past and time-resolved future".
Nov. 2018	Invited speaker and tutor at South American CCP4 School (Sao Carlos, Brazil).
Oct. 2018	Invited speaker and tutor at Indian CCP4 School (Chandigarth, India).
July 2018	Invited speaker at the Gordon Research Conference on "Molecular Motors" (Mount Snow, VT, USA).
May 2018	Invited speaker at the Myofilament Meeting "Elastic domains in proteins of the sarcomere: Stressors, regulators or rulers?" (Madison, WI, USA).
May 2016	Invited speaker at "Structure and Dynamics of the Sarcomere", Belgrade, 2016.
Jan. 2016	Invited speaker at CCP4 Study Weekend "Protein-Ligand Complexes: Understanding Biological Chemistry".
Jan. 2015	Invited speaker at the British Crystallographic Association Winter Meeting "Reactive Macromolecules", Manchester.

Jan. 2015	Invited speaker at ESRF User Meeting Microsymposium "Structural biology at the ESRF - More than crystallography".
Apr. 2014	Invited speaker at the 8th International Meeting on "X-ray Damage to Biological Crystalline Samples", EMBL/DESY-Hamburg, Apr 2014.
Oct. 2013	Invited speaker at the Conference on "Myofibrillar Z-disk Structure and Dynamics", Hamburg, October 2013.
Earlier	I have given several research seminars and participated to workshops all over the world (US, China, Japan, South Africa, Europe).

Editorial Highlights

2014	Work from my lab was selected for the structural biology section of the European Synchrotron Radiation Facility Highlight issue.
2010	Work from my lab was selected for the structural biology section of the Diamond Light Source Highlight issue.

Publications (* means corresponding/co-corresponding author status)

1. Bolton R, Machlett MM, …….**Steiner RA**,……..Owen RL, Tews I (2024) A redox switch allows binding of Fe(II) and Fe(III) ions in the cyanobacterial iron-binding protein FutA from *Prochlorococcus*. *Proc Natl Acad Sci USA*, 121, e2308478121. doi: 10.1073/pnas.2308478121.
2. Catapano L, Long F, Yamashita K, Nicholls RA, **Steiner* RA**, Murshudov GN (2023) Neutron crystallographic refinement with REFMAC5 from the CCP4 suite. *Acta Crystallogr D Struct Biol.* 79:1056-1070. doi: 10.1107/S2059798323008793.
3. Bui S, Gil-Guerrero S, van der Linden P, Carpentier P, Ceccarelli M, Jambrina PG, **Steiner* RA** (2023) Evolutionary adaptation from hydrolytic to oxygenolytic catalysis at the α/β-hydrolase fold. *Chem Sci*. 14:10547-10560. doi: 10.1039/d3sc03044j.
4. Mori G, Liuzzi A, Ronda L, Di Palma M, Chegkazi MS, Bui S, Garcia-Maya M, Ragazzini J, Malatesta M, Della Monica E, Rivetti C, Antin PB, Bettati S, **Steiner* RA**, Percudani R (2023) Cysteine Enrichment Mediates Co-Option of Uricase in Reptilian Skin and Transition to Uricotelism. *Mol Biol Evol*. 40:msad200. doi: 10.1093/molbev/msad200.
5. Aguirre J, Atanasova M, …….. **Steiner RA**,….Wojdyr M, Yamashita K (2023) The CCP4 suite: integrative software for macromolecular crystallography. *Acta Crystallogr D Struct Biol*. 79, 449-461. doi: 10.1107/S2059798323003595.
6. **Steiner* RA** (2023) Introduction to the virtual thematic issue on room-temperature biological crystallography *IUCrJ*, 10,248-250. doi: 10.1107/S2052252523002968 and *Acta Crystallogr D Struct Biol.* 79, 268-270. doi: 10.1107/S2059798323002449 and *Acta Crystallogr F Struct Biol Commun*. 2023 79, 79-81. doi: 10.1107/S2053230X23002935.
7. Zielinski KA, Prester A, Andaleeb H, Bui S, Yefanov O, Catapano L, Henkel A, Wiedorn MO, Lorbeer O, Crosas E, Meyer J, Mariani V, Domaracky M, White TA, Fleckenstein H, Sarrou I, Werner N, Betzel C, Rohde H, Aepfelbacher M, Chapman HN, Perbandt M, **Steiner* RA**, Oberthuer D. (2022). Rapid and efficient room-temperature serial synchrotron crystallography using the CFEL TapeDrive. *IUCrJ* 9, 778-791. doi: 10.1107/S2052252522010193.
8. Hight-Warburton W, Felix R, Burton A, Maple H, Chegkazi MS, **Steiner RA**, McGrath JA, Parsons M. (2021). α4/α9 Integrins Coordinate Epithelial Cell Migration Through Local Suppression of MAP Kinase Signaling Pathways. *Front Cell Dev Biol.* 2021 9:750771. doi: 10.3389/fcell.2021.750771.
9. Antón Z, Weijman JF, Williams C, Moody ERR, Mantell J, Yip YY, Cross JA, Williams TA, **Steiner RA**, Crump MP, Woolfson DN, Dodding MP (2021) Molecular mechanism for kinesin-1 direct membrane recognition. *Sci. Adv.* 7(31):eabg6636. doi: 10.1126/sciadv.abg6636.
10. Cross JA, Chegkazi MS, **Steiner* RA**, Woolfson DN, Dodding MP (2021) A designed high-affinity peptide that hijacks microtubule-based transport. *Cell Chem. Biol.* 28, 1347-1355.e5. doi: 10.1016/j.chembiol.2021.03.010.

11. McGregor L, Földes T, Bui S, Moulin M, Coquelle N, Blakeley MP, Rosta E, **Steiner* RA**, (2021) Joint neutron/X-ray crystal structure of a mechanistically relevant complex of perdeuterated urate oxidase and simulations provide insight into the hydration step of catalysis. *IUCrJ*, 8, 46-59. doi: 10.1107/S2052252520013615. PMID: 33520242.
12. Supsrisunjai C, Hsu CK, Michael M, Duval C, Lee JYW, Yang HS, Huang HY, Chaikul T, Onoufriadis A, **Steiner RA**, Ariëns RAS, Sarig O, Sprecher E, Eskin-Schwartz M, Samlaska C, Simpson MA, Calonje E, Parsons M, McGrath JA, (2020) Coagulation Factor XIII-A Subunit Missense Mutation in the Pathobiology of Autosomal Dominant Multiple Dermatofibromas. *J Invest Dermatol*, 140, 624-635.e7. doi: 10.1016/j.jid.2019.08.441. PMID: 31493396.
13. Pernigo S, Chegkazi MS, Yip YY, Treacy C, Glorani G, Hansen K, Politis A, Bui S, Dodding MP, **Steiner* RA**, (2018) Structural basis for isoform-specific kinesin-1 recognition by Y-acidic cargo adaptors. *Elife* Oct 15; 7. pii: e38362. *doi: 10.7554/eLife.38362*. PMID: 30320553.
14. Randall TS, Yip YY, Wallock-Richards DJ, Pfisterer K, Sanger A, Ficek W, **Steiner RA**, Beavil AJ, Parsons M, Dodding MP (2017) A small-molecule activator of kinesin-1 drives remodelling of the microtubule network. *Proc Natl Acad Sci USA*, 114, 13738-13743. doi: 10.1073/pnas.1715115115. PMID: 29229862.
15. von Stetten D, Giraud T, Bui S, **Steiner RA**, Fihman F, de Sanctis D, Royant A. (2017) Online Raman spectroscopy for structural biology on beamline ID29 of the ESRF. *J Struct Biol*, 200, 124-127. doi: 10.1016/j.jsb.2017.10.004. PMID: 29042242.
16. Fin L, Bergamin G, **Steiner* RA**, Hughes SM (2017) The Cannabinoid Receptor Interacting Proteins 1 of zebrafish are not required for morphological development, viability or fertility. *Sci Rep*, 7, 4858. doi: 10.1038/s41598-017-05017-5. PMID: 28687732.
17. Sanger A, Yip YY, Randall TS, Pernigo S, **Steiner RA**, Dodding MP (2017) SKIP controls lysosome positioning using a composite kinesin-1 heavy and light chain-binding domain. *J Cell Sci*, 130, 1637-1651. doi: 10.1242/jcs.198267. PMID: 28302907.
18. **Steiner* RA**, Tucker JA (2017) Keep it together: restraints in crystallographic refinement of macromolecule-ligand complexes. *Acta Crystallogr D*73, 93-102. doi: 10.1107/S2059798316017964. PMID: 28177305.
19. Pernigo S, Fukuzawa A, Beedle AE, Holt M, Round A, Pandini A, Garcia-Manyes S, Gautel M, **Steiner* RA** (2017) Binding of Myomesin to Obscurin-Like-1 at the Muscle M-Band Provides a Strategy for Isoform-Specific Mechanical Protection. *Structure* (Cell Press) 25,107-120. doi: 10.1016/j.str.2016.11.015. PMID: 27989621.
20. Bui S and **Steiner* RA** (2017) New insight into cofactor-free oxygenation from combined experimental and computational approaches. *Curr Opin Struct Biol*, 41,109-118. doi: 10.1016/j.sbi.2016.06.015. PMID: 27393973.
21. Twelvetrees AE, Pernigo S, Sanger A, Guedes-Dias P, Schiavo G, **Steiner RA**, Dodding MP, Holzbaur EL (2016), The dynamic localization of cytoplasmic dynein in neurons is driven by kinesin-1, *Neuron*, 90, 1000-1015. doi: 10.1016/j.neuron.2016.04.046. PMID: 27210554.
22. Yip YY, Pernigo S, Sanger A, Xu M, Parsons M, **Steiner* RA**, Dodding MP (2016), The light chains of kinesin-1 are autoinhibited, *Proc Natl Acad Sci USA*, 113, 2418-2423. doi: 10.1073/pnas.1520817113. PMID: 26884162.
23. Santos CX, Hafstad AD, Beretta M, Zhang M, Molenaar C, Kopec J, Fotinou D, Murray TV, Cobb AM, Martin D, Zeh Silva M, Anilkumar N, Schröder K, Shanahan CM, Brewer AC, Brandes RP, Blanc E, Parsons M, Belousov V, Cammack R, Hider RC, **Steiner RA**, Shah AM (2016), Targeted redox inhibition of protein phosphatase 1 by Nox4 regulates eIF2α-mediated stress signaling, *EMBO J*, 35, 319-334. doi: 10.15252/embj.201592394. PMID: 26742780.
24. Hernandez-Ortega A, Quesne MG, Bui S, Heyes DJ, **Steiner RA**, Scrutton NS, de Visser SP (2015), Catalytic mechanism of cofactor-free dioxygenases and how they circumvent spin-forbidden oxygenation of their substrates, *J Am Chem Soc*, 137, 7474-7487. doi: 10.1021/jacs.5b03836. PMID: 25988744.
25. Pernigo S, Fukuzawa A, Pandini A, Holt M, Kleinjung J, Gautel M, **Steiner* RA** (2015)

The crystal structure of the human titin:obscurin complex reveals a conserved yet specific muscle M-band zipper module, *J Mol Biol*, 427, 718-736. [Featured Article and Journal Cover]. doi: 10.1016/j.jmb.2014.11.019. PMID: 25490259.

26. Bui S, von Stetten D, Jambrina PG, Prangé T, Colloc'h N, de Sanctis D, Royant A, Rosta E, **Steiner* RA** (2014), Direct evidence for a peroxide intermediate and a reactive enzyme-substrate-dioxygen configuration in a cofactor-free oxidase, *Angew Chem Int Ed*, 53, 13710-13714 ['Hot Paper' status]. doi: 10.1002/anie.201405485. PMID: 25314114.
27. Hernandez-Ortega A, Quesne MG, Bui S, Heuts DP, **Steiner* RA**, Heyes DJ, de Visser SP, Scrutton NS (2014), Origin of the proton-transfer step in the cofactor-free 1-*H*-3-hydroxy-4-oxoquinaldine 2,4-dioxygenase: effect of the basicity of an active site His residue, *J Biol Chem*, 289, 8620-8632. doi: 10.1074/jbc.M113.543033. PMID: 24482238.
28. **Steiner* RA**, "Cu-Dependent Quercetin Dioxygenase" (2013), pp. 1-12 in *Encyclopedia of Inorganic and Bioinorganic Chemistry*, R.A. Scott ed., John Wiley & Sons Ltd., Chichester, UK. doi: 10.1002/9781119951438.eibc2174.
29. Pernigo S, Lamprecht A, **Steiner* RA**, Dodding MP (2013), Structural basis for kinesin-1:cargo recognition, *Science*, 340, 356-359. doi: 10.1126/science.1234264. PMID: 23519214.
30. **Steiner* RA** and Rupp B (2012), Model building, refinement and validation, *Acta Cryst D*68, 325-327. (Introduction to the 2011 CCP4 Study Weekend). doi: 10.1107/S0907444912002090. PMID: 22505252.
31. Murshudov GN, Skubák P, Lebedev AA, Pannu NS, **Steiner RA**, Nicholls RA, Winn MD, Long F, Vagin AA. (2011) *Refmac*5 for the refinement of macromolecular structures, *Acta Cryst D*67, 355-367. doi: 10.1107/S0907444911001314. PMID: 21460454.
32. Schubert HL, Zhai Q, Sandrin V, Eckert DM, Garcia-Maya M, Saul L, Sundquist WI, **Steiner* RA**, Hill CP (2010) Structural and functional studies on the extracellular domain of BST2/tetherin in reduced and oxidized conformations, *Proc Natl Acad Sci USA*, 107, 17951-17956. doi: 10.1073/pnas.1008206107. PMID: 20880831.
33. Fetzner S. and **Steiner* RA** (2010) Cofactor-independent oxidases and oxygenases. *Appl Microbiol Biotechnol* 86*,* 791-804. doi: 10.1007/s00253-010-2455-0. PMID: 20157809.
34. Pernigo S, Fukuzawa A, Bertz M, Holt M, Rief M, **Steiner* RA**, Gautel M (2010) Structural insight into M-band assembly and mechanics from the titin-obscurin-like 1 complex. *Proc Natl Acad Sci USA,* 107, 2908-2913. doi: 10.1073/pnas.0913736107. PMID: 20133654.
35. **Steiner* RA**, Janssen HJ, Roversi P, Oakley OJ, Fetzner S (2010) Structural basis for cofactor independent dioxygenation of *N*-heteroaromatic compounds at the α/β-hydrolase fold. *Proc Natl Acad Sci USA,* 107, 657-662. doi: 10.1073/pnas.0909033107. PMID: 20080731.
36. **Steiner* RA**, Frerichs-Deeken U, Fetzner S. (2007) Crystallization and preliminary X-ray analysis of 1-H-3-hydroxy-4-oxoquinaldine 2,4-dioxygenase from *Arthrobacter nitroguajacolicus* Rü61a: a cofactor-devoid dioxygenase of the α/β hydrolase fold superfamily. *Acta Cryst F*63, 382-385. PMID: 17565176.
37. Valls N, **Steiner RA**, Wright G, Murshudov GN, Subirana JA (2005) Variable role of ions in two drug intercalation complexes of DNA. *J Biol Inorg Chem* 10, 476-482. PMID: 15926069.
38. Vagin AA, **Steiner RA**, Lebedev AA, Potterton L, McNicholas S, Long F, Murshudov GN (2004) *REFMAC*5 dictionary: organization of chemical prior knowledge and guidelines of its use. *Acta Cryst D*60, 2184-2195. PMID: 15572771.
39. Valls N, Wright, G, **Steiner RA**, Murshudov GN, Subirana JA (2004) DNA variability in five crystal structures of d(CGCAATTGCG). *Acta Cryst D*60, 680-685. PMID: 15039556.
40. **Steiner RA**, Lebedev AA, Murshudov GN (2003) Fisher's information in maximum-likelihood crystallographic refinement. *Acta Cryst D*59, 2114-2124. PMID: 14646069.
41. Fittipaldi M, **Steiner RA**, Matsushita M, Dijkstra BW, Groenen EJJ, Huber M. (2003) Single-crystal EPR study at 95 GHz of the type 2 copper site of the inhibitor-bound quercetin 2,3-dioxygenase. *Biophys J* 85, 4047-4054. PMID: 14645093.

42. **Steiner RA,** Kalk KH, Dijkstra BW (2002) Anaerobic enzyme·substrate structures provide insight into the reaction mechanism of the copper-dependent quercetin 2,3-dioxygenase. *Proc Natl Acad Sci USA,* 99, 16625-16630. PMID: 12486225.
43. **Steiner RA** (2002) Mechanistic studies of the copper-dependent quercetin 2,3-dioxygenase from *A. japonicus.* X-ray crystallography, spectroscopy and theoretical calculations. Ph.D. thesis. University of Groningen. Print ISBNs 9036715954.
44. **Steiner RA,** Meyer-Klaucke W, Dijkstra BW (2002) Functional analysis of the copper-dependent quercetin 2,3-dioxygenase. 2. X-ray absorption studies of native enzyme and anaerobic complexes with the substrates quercetin and myricetin. *Biochemistry*, 41, 7963-7968. PMID: 12069586.
45. **Steiner RA,** Kooter IM, Dijkstra BW (2002) Functional analysis of the copper-dependent quercetin 2,3-dioxygenase. 1. Ligand-induced coordination changes probed by X-ray crystallography: inhibition, ordering effect, and mechanistic insights. *Biochemistry,* 41, 7955-7962. PMID: 12069585.
46. Kooter IM, **Steiner RA,** Huber M, Dijkstra BW, van Noort PI, Egmond M (2002) EPR characterization of the mononuclear Cu-containing *A. japonicus* quercetin 2,3-dioxygenase reveals dramatic changes upon anaerobic binding of substrates. *Eur J Biochem* 269, 2971-2979. PMID: 12071961.
47. Fusetti F, Schroter KH, **Steiner RA**, van Noort PI, Pijning T, Rozeboom HJ, Kalk K, Egmond MR, Dijkstra BW (2002) Crystal structure of the copper-containing quercetin 2,3-dioxygenase from *A. japonicus. Structure,* 10, 259-268. PMID: 11839311.
48. **Steiner RA**, Rozeboom HJ, de Vries A, Kalk KH, Murshudov GN, Wilson KS, Dijkstra BW (2001) X-ray structure of bovine pancreatic phospholipase A2 at atomic resolution. *Acta Cryst D*57, 516-526. PMID: 11264580.
49. **Steiner RA**, Murshudov GN (2000) Flat model bulk solvent correction in the program *REFMAC. Acta Cryst A56 (Supplement), s301.*
50. **Steiner RA**, van Noort, PI, Egmond, MR, Dijkstra BW (2000) Structural basis for the oxygenation of flavonols by quercetin 2,3-dioxygenase. *Acta Cryst* A56 (Supplement), s77.
51. Wijnen JW, **Steiner RA**, Engberts JBFN (1995) 1,3-dipolar cycloaddition of phenyl azide to norbornene in aqueous solutions. *Tetrahedron Lett,* 36, 5389-5392.