

Curriculum Vitae et Studiorum

Prof. Daniele Dell'Orco

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SPOKEN LANGUAGES

- **Italian:** mother-tongue; **English:** Fluent; **Spanish:** Beginner; **German:** Beginner

EDUCATION/ACADEMIC POSITIONS

- **June 2017 – present:** Associate Professor of Biochemistry and Bioinformatics (SSD BIO/10) at the University of Verona, School of Medicine and Surgery
- **December 2011 – June 2017:** Assistant Professor of Biochemistry, (SSD BIO/10); University of Verona, Italy. Adjunct Professor of Bioinformatics, University of Verona, Italy
- **August 2009 – December 2011:** Alexander von Humboldt Research fellow at the Department of Biology and Environmental Sciences, University of Oldenburg, Germany.
- **March 2009- June-2009:** FEBS Research Fellow (short visit grant) at the Department of Biophysical Chemistry, Lund University (Sweden).
- **February 2007 – February 2009:** Post-Doc position at the Department of Chemistry and Dulbecco Telethon Institute, University of Modena and Reggio Emilia
- **March-May 2008:** Visiting Scientist at the Systems Biology and Bioinformatics group, Dept. of Computer Science, University of Rostock
- **April – May 2007:** Visiting Scientist at the Fraunhofer Chalmers Research Centre – Department of Systems Biology, Gothenburg, Sweden.
- **January 2004- January 2007:** PhD in Biotechnology and Molecular Medicine at the University of Modena and Reggio Emilia
- **July 2003:** “Laurea in Fisica” corresponding to B.Sc. degree in Physics and M.Sc. degree in Biophysics, obtained at University of Parma (110/110 summa cum laude)
- **August 2002- June 2003:** Research activity at the Department of Biophysical Chemistry of Lund University (Sweden)

AWARDS AND QUALIFICATIONS

- **September 2018:** Qualification as Full Professor of General Biochemistry in Italian universities
- **April 2017:** Qualification as Full Professor of Applied Physics/Biophysics in Italian universities
- **April 2015:** Qualification as Associate Professor of Biochemistry in Italian Universities
- **2014-2015:** Hanse-Wissenschaftskolleg (HWK) Fellowship in Neuroscience, for an 8 month-research and teaching period, Institute for Advanced Study Delmenhorst – Germany
- **December 2013:** Qualification as Associate Professor of Applied Physics/Biophysics in Italian Universities
- **2011:** Visiting Fellow (Host of the Rector), Hanse-Wissenschaftskolleg (HWK) Institute for Advanced Study Delmenhorst – Germany
- **2010:** European Science Foundation – Short Visit Grant (Lund, Sweden).
- **2009:** Alexander von Humboldt Research Fellowship for 24 month-project in Germany. Project Title: Unravelling dynamic processes in vertebrate rods phototransduction: integrating biochemical/biophysical experiments with computational modelling at a systems-level
- **2009:** European Science Foundation – Short Visit Grant (Lund, Sweden). Project title: Mathematical model of nanoparticle-protein interaction dynamics in biological fluids and environments
- **2009:** FEBS-Short Term Fellowship (Lund, Sweden): Project Title: Ca²⁺ signalling in vision: biophysical characterization of Ca²⁺-dependent conformational changes in the neuronal calcium sensors guanylate cyclase-activating proteins (GCAPs) and determination of the protein-ion binding constants
- **2008:** Italian Bioinformatics Society (BITS) award for the best Italian PhD thesis in Bioinformatics; international reviewing committee

GRANTS

- **2019:** Verona Brain Research Foundation Grant (Renewal) (Molecular design of nanovesicles for protein-replacement in retinal dystrophies therapeutics), € 10,000. Project Coordinator-12 months
- **2019:** PRIN2017 (Integrative tools for defining the molecular basis of the diseases: computational and experimental methods for protein variant interpretation), € 118,700. Coordinator of a Research Unit-36 months

- **2019:** Joint Project 2018 UniVR grant (Caratterizzazione genetica, molecolare e funzionale di nuove varianti patogeniche di GCAP1 associate a distrofie retiniche ereditarie), € 31,460. Project Coordinator- 24 months
- **2017:** Verona Brain Research Foundation Grant (Molecular design of nanovesicles for protein-replacement in retinal dystrophies therapeutics), € 10,000. Project Coordinator-12 months
- **2016:** Telethon Research Grant GGP16010 (Cone dystrophies and retinal degeneration from protein structures to biological networks. Toward the design of therapeutic molecules), € 327,666. Project Coordinator-36 months
- **2016:** Bando Ricerca di Base, Università di Verona. Grant UMBUSH (Understanding the molecular basis of Usher syndrome type 1J: the role of functional defects in CIB2). € 47,000. Project Coordinator-24 months
- **2015:** Italian Super Computing Resource Allocation; Grant: HP10C54GB4 (Unveiling intra- and inter-molecular communication pathways in neuronal calcium sensor proteins by molecular dynamics simulations; 192,000 hours)
- **2015:** Italian Super Computing Resource Allocation; Grant: HP10CB7L79 (Intramolecular communication pathways in GCAP1 mutants associated with cone dystrophy unveiled by molecular dynamics simulations; 180,000 hours)
- **2014:** Italian Super Computing Resource Allocation; Grant: HP10CB736X (Setting up molecular dynamics simulations of GCAP1 mutants associated with cone and cone-rod dystrophy; 63,000 hours)
- **2009:** Blancefor Boncompagni Ludovisi Grant (Stockholm, Sweden) for support of research expenses (170,000 SEK)

RESEARCH TOPICS AND EXPERTISE

- Quantitative structure-function/structure-activity relationships of proteins and their complexes
- Network-level analysis of signal transduction pathways, especially vertebrate phototransduction
- Protein networks dynamics in normal and disease-associated conditions.
- Protein-protein and protein-ion interactions studied by experimental techniques (surface plasmon resonance, isothermal titration calorimetry, fluorescence and absorption spectroscopy, circular dichroism, dynamic light scattering)
- Biophysical characterization of protein-nanoparticle interactions for nanomedicine applications
- Thermodynamic and kinetic analysis of protein-protein and protein-ion interactions
- Bioinformatics and computational analysis of structural properties of single proteins (Molecular Dynamics simulations), protein complexes (protein modeling and protein-protein docking simulations) and signalling networks
- Effects of point mutations on the kinetics and thermodynamics of protein-protein interactions

INVITED LECTURES AND SEMINARS

- **2020:** *European Calcium Society Meeting ECS2020, Cork, Ireland. Invited talk entitled: "Retinal dystrophies associated with point mutations in guanylate cyclase activating proteins"*
- **2020:** *"Physiological and pathological regulation of vertebrate phototransduction: from molecules to networks", Invited seminar, Institut de la Vision, Paris, France*
- **2020:** *"Physiological and pathological regulation of vertebrate phototransduction: from molecules to networks", Invited seminar, SISSA, Trieste, Italy*
- **2020:** Winter School "Physics of the cell", University of Trento. Invited lecture entitled: "Physics of vision: photoreceptor cells"
- **2019:** *"Physiological and pathological regulation of vertebrate phototransduction: from molecules to networks", Invited seminar, Institut de Biologie Valrose Université Nice Côte d'Azur, Nice, France*
- **2019:** PhD week 2019, University of Trieste, Institute of Medical Genetics. Invited talk entitled: "Molecular basis of retinal dystrophies: from individual proteins to networks"
- **2019:** 98th Meeting of the German Physiological Society, Ulm, Germany, invited lecture entitled: "Calcium binding proteins and the regulation of the visual sensory system: from molecules to networks"
- **2019:** Understanding human genome variations and their influence on human traits. Bioinformatics insights. Winter School UniVR - Alba di Canazei, invited lecture entitled: "Modelling genetic diseases affecting signal transduction: from single proteins to networks"
- **2018:** MAGI group conference day, San Felice del Benaco, Italy. Invited Lecture entitled: "Molecular basis of retinal dystrophies: from individual proteins to networks"
- **2018:** International Society for Eye Research Biennial meeting, Belfast, Northern Ireland, September 9 - 13. Invited lecture within the session Retina Cell Biology entitled: "Dysregulation of Second Messenger Homeostasis and Congenital Retinal Dystrophies: The Variety of GUCA1A Mutations in Photoreceptors:"

- **2018:** International Symposium on Usher Syndrome, Mainz, Germany, July 19-21. Selected oral talk entitled: "A magnesium-triggered conformational change in CIB2 is impaired in Usher Syndrome type 1J"
- **2018:** "Physiological and pathological regulation of vertebrate phototransduction: a multiscale approach". Invited seminar, School of Biomolecular & Biomedical Science, University College Dublin, Ireland
- **2017:** 59^{mo} Congresso della Societa' Italiana di Biochimica e di Biologia Molecolare, Caserta, Italy. Invited lecture entitled: "Phototransduction in normal and altered conditions: from molecules to networks"
- **2017:** Workshop SIB "Biologia Computazionale e di Sistema/SYSBIO: Dalle molecole alle funzioni biologiche complesse: Il metodo computazionale", Accademia delle Scienze Bologna. Invited lecture: "Intramolecular communication pathways in a calcium sensor protein unveil allosteric regulation mechanisms", University of Bologna, Italy
- **2016:** "Ca²⁺/cGMP-regulation of the early steps in vertebrate vision under normal and altered conditions", invited seminar, Dept. of Biosciences, University of Milan, Italy
- **2016:** "Phototransduction, retinal diseases and nanoparticles: a multiscale investigation from molecules to networks", invited seminar, CIBIO, University of Trento, Italy
- **2016:** 2nd European Meeting on Phototransduction, Monte Verita' (Switzerland), 4-7 September. Invited lecture entitled: "A multiscale perspective on Ca²⁺/cGMP homeostasis in rods under normal and altered conditions"
- **2016:** Workshop SIB "Biologia Computazionale e di Sistema/SYSBIO: Dalle molecole alle funzioni biologiche complesse: Il metodo computazionale", Accademia delle Scienze Bologna. Invited lecture: "Signaling networks in vertebrate photoreceptors in health and disease"
- **2015:** "Changing paradigms in the visual sensory world: a biophysical perspective", invited seminar, Department of Experimental Medicine (DIMES), University of Genoa, Italy
- **2015:** "Changing paradigms in the visual sensory world: a biochemical and biophysical perspective", invited seminar, Department of Biotechnology, University of Verona, Italy
- **2014:** "The regulation of Ca²⁺/cGMP homeostasis in rod photoreceptor cells in normal and disease-associated conditions", invited seminar, Department of Neurosciences, University of Oldenburg (Germany)
- **2014:** V Jornada de Biofisica, Societat Catalana de Biologia, Barcelona, Spain. Invited plenary lecture entitled: "Changing paradigms in the visual sensory world: a biophysical perspective".
- **2014:** 13th International Meeting of the European Calcium Society, Aix-en-Provence, France. Invited lecture entitled: "Molecular aspects of the regulation of Ca²⁺/cGMP homeostasis in rod photoreceptor cells in normal and altered conditions".
- **2013:** Scientific Kick-Off Meeting of the RTG, Molecular Basis of Sensory Biology, Hanse-Wissenschaftskolleg (HWK), Delmenhorst, Germany. Invited lecture entitled: "Changing paradigms in the (visual) sensory world".
- **2013:** 38th FEBS Congress, Saint Petersburg, Russia. Invited lecture in the session "Biochemistry of Vision". "Rhodopsin organization and phototransduction: reconciling classical and novel perspectives".
- **2013:** 18th International Conference on Calcium Binding Proteins and Calcium Function in Health and Disease, Kiruna, Sweden. Invited lecture entitled: "Dynamics of conformational transitions in calcium sensors investigated by surface plasmon resonance".
- **2012:** "Rhodopsin, transducin and dynamic scaffolding: rethinking the early steps in vertebrate vision", invited seminar, Department of Physiology, University of Pisa, Italy
- **2011:** "Rhodopsin, transducin and dynamic scaffolding: rethinking the early steps in vertebrate vision", invited seminar, Department of Pharmacology, Vanderbilt Medical School, Nashville, USA
- **2011:** "Early molecular events in vertebrate vision: the phototransduction cascade from a systems perspective", invited seminar, Focused Meeting DYNAMO, Center for experimental Ophthalmology, Eye Clinic, University of Tuebingen, Germany
- **2011:** "Early molecular events in vertebrate vision: the phototransduction cascade from a systems perspective", invited seminar, Department of Molecular Evolution, University Pompeu Fabra, Barcelona, Spain
- **2010:** "Systems biochemistry approaches to vertebrate phototransduction: toward a molecular understanding of disease", Systems Biochemistry- Linked Focus Meeting, York, UK
- **2009:** "Light adaptation in rod cells under normal and altered conditions: a computational network-level analysis", European Retina Meeting, Oldenburg, Germany
- **2008:** "Bridging the gap between systems and structural biology: protein-protein interaction as a starting point", Dipartimento di Biologia ed Evoluzione, University of Ferrara
- **2008:** "Molecular Systems Biology approaches to phototransduction in vertebrate rods: from single photon response to light adaptation", XIC conference of Societa' Italiana di Biofisica Pura ed Applicata (SIBPA), Rome

- **2007:** “Computational simulations of protein-protein recognition: predicting mutational effects on the binding thermodynamics”, Department of Physics, University of Parma
- **2007:** “Mutation-induced modulation of protein-protein interactions: fast computational screening of kinetic and thermodynamic effects”, 5th Dulbecco Telethon Institute Scientific Retreat, Foligno
- **2007:** “Computational simulations of protein-protein recognition: predicting mutational effects on the binding thermodynamics”, Department of Systems Biology – FCC Centre, Gothenburg, Sweden
- **2007:** “Computational screening of mutational effects on protein-protein and protein-DNA interactions: a fast docking-based approach”, Bologna Winter School 2007 in *Bioinformatics for Systems and Synthetic Biology*, Bologna
- **2006:** “Computational screening of mutational effects on protein-protein and protein-DNA interactions: a fast docking-based approach”, VI Convegno Nazionale Gruppo Interdivisionale di Chimica Computazionale, Isola di San Servolo, Venezia
- **2006:** “In Silico Screening of Mutational Effects on Enzyme- Inhibitor Affinity: a Docking-based approach.”, workshop *From Computational Biophysics to Systems Biology*, Julich, Germany
- **2005:** “Fragment complementation and rigid-body docking: a combined approach to protein domain assembly”, Department of Biophysical Chemistry, Lund, Sweden

ORGANIZATION OF INTERNATIONAL CONFERENCES AND MEETINGS

- **2019:** “Young Researcher Vision Camp 2019”, organizer and chair of the session “Computational tools to understand the retina and its processes”, Leibertingen, Germany
- **2018:** Member of the organizing Committee of the International Meeting “Proteine 2018”, June 4-7, Verona, (Italy)
- **2018:** Member of the organizing Committee of Workshop “Sensory systems in health and disease”, May 28-30, Verona, (Italy)
- **2016:** Organizer of the international Meeting “Neuronal Calcium Sensors in health and disease”, held December, 4-7 2016 at the HWK Delmenhorst (Germany)
- **2013:** Co-organizer, together with Karl-Wilhelm Koch, of the European Meeting on Phototransduction, held June 19-22, 2013 at the HWK Delmenhorst (Germany)
- **2013:** International organizing Committee, 8th International Conference on Calcium Binding Proteins and Calcium Function in Health and Disease 30 June – 4 July, 2013 in Kiruna (Sweden)

REFEERING

Referee for the following Peer-review journals:

- *ACS Chemical Neuroscience, ACS Nano, Analytical Methods, BBA-Proteins and Proteomics, BBA-Biomembranes, BBA-Molecular and Cellular Research, Biochemistry, Biochemical Journal, BioMacromolecules, Biomaterials, Biomolecules, BioSystems, Chemical Society Reviews, Cellular and Molecular Life Sciences, Experimental Eye Research, Integrative Biology, Journal of Controlled Release, Journal of Physical Chemistry B, Molecular BioSystems, Molecular Vision, Nature Communications, New Journal of Chemistry, Nucleic Acids Research, Physical Chemistry Chemical Physics, PLoS Biology, PLoS Computational Biology, PLoS One, Scientific Reports*

SCIENTIFIC EVALUATION PANELS

- **From 2019:** Reviewer for proposals for the Engineering and Physical Sciences Research Council (EPSRC), UK
- **From 2015:** International Evaluator of proposals within the EURIAS Program for Fellowships in Institutes of Advanced Study (Neuroscience, Physical and Biological Sciences)
- **From 2012:** International evaluator for the project proposals for the Romanian National Council for Scientific Research

MEMBERSHIP

- **2019-present:** Member of the Protein Society
- **2014-present:** Member of the European Calcium Society
- **2009-present:** Member of the Italian Society of Biochemistry and Molecular Biology (SIB)
- **2010-2014:** Member of the Biochemical Society (UK)
- **2008-2013:** Member of the Bioinformatics Italian Society (BITS)

EDITORIAL BOARDS MEMBERSHIP

- **2019-present:** Topic Editor, International Journal of Molecular Sciences
- **2018-present:** Associate Editor, Frontiers in Molecular Neurosciences
- **2018-present:** Review Editor, Frontiers in Molecular Biosciences
- **2015-2018:** Review Editor, Frontiers in Molecular Neurosciences

- **2010-2015:** Member of the editorial Board for the Journal of Nanomedicine and Biotherapeutic Discovery

PUBLICATIONS AND CONTRIBUTIONS

Starting from 2005, Dr. Dell'Orco has authored 69 articles appeared in international peer-reviewed journals. He has also co-authored two book chapters. To date his **H-index** is **24** (source: Google Scholar).

Peer-reviewed articles (**Underlined:** corresponding author):

1. Dal Cortivo G, Marino V, Bonì F, Milani M, **Dell'Orco D**. Missense mutations affecting Ca²⁺-coordination in GCAP1 lead to cone-rod dystrophies by altering protein structural and functional properties. *Biochim Biophys Acta Mol Cell Res.* **2020**;1867(10):118794
2. Abbas S, Marino V, Weisschuh N, Kieninger S, Solaki M, **Dell'Orco D**, Koch KW. Neuronal Calcium Sensor GCAP1 Encoded by GUCA1A Exhibits Heterogeneous Functional Properties in Two Cases of Retinitis Pigmentosa. *ACS Chem Neurosci.* **2020**;11(10):1458-1470.
3. Di Stazio M, Morgan A, Brumat M, Bassani S, **Dell'Orco D**, Marino V, Garagnani P, Giuliani C, Gasparini P, Giroto G. New age-related hearing loss candidate genes in humans: an ongoing challenge. *Gene.* **2020**;742:144561.
4. Abbas S, Marino V, Bielefeld L, Koch KW, **Dell'Orco D**. Constitutive Activation of Guanylate Cyclase by the G86R GCAP1 Variant Is Due to "Locking" Cation- π Interactions that Impair the Activator-to-Inhibitor Structural Transition. *Int J Mol Sci.* **2020**;21(3). pii: E752
5. **Dell'Orco D**, Dal Cortivo G. Normal GCAPs partly compensate for altered cGMP signaling in retinal dystrophies associated with mutations in GUCA1A. *Sci Rep.* **2019**; 9(1):20105.
6. **Dell'Orco D**, Koch KW, Kreutz MR, Naranjo JR, Schwaller B. Editorial: Neuronal Calcium Sensors in Health and Disease. *Front Mol Neurosci.* **2019**;12:278.
7. Borsatto A, Marino V, Abrusci G, Lattanzi G, **Dell'Orco D**. Effects of Membrane and Biological Target on the Structural and Allosteric Properties of Recoverin: A Computational Approach. *Int J Mol Sci.* **2019** Oct 10;20(20).
8. Abbas S, Marino V, **Dell'Orco D**, Koch KW. Molecular Recognition of Rhodopsin Kinase GRK1 and Recoverin Is Tuned by Switching Intra- and Intermolecular Electrostatic Interactions. *Biochemistry.* **2019** Oct 29;58(43):4374-4385.
9. Dal Cortivo G, Marino V, Iacobucci C, Vallone R, Arlt C, Rehkamp A, Sinz A, **Dell'Orco D**. Oligomeric State, Hydrodynamic Properties and Target Recognition of Human Calcium and Integrin Binding protein 2 (CIB2). *Sci Rep.* **2019**, 9 (1), 1505
10. Morgan A, Koboldt DC, Barrie ES, Crist ER, García García G, Mezzavilla M, Faletra F, Mihalic Mosher T, Wilson RK, Blanchet C, Manickam K, Roux AF, Gasparini P, **Dell'Orco D**, Giroto G. Mutations in PLS1, encoding fimbrin, cause autosomal dominant non-syndromic hearing loss. *Human Mut.* **2019**. 40 (12), 2286-2295
11. Aquila M, **Dell'Orco D**, Fries R, Koch KW, Rispoli G. Incorporating phototransduction proteins in zebrafish green cone with pressure-polished patch pipettes. *Biophysical Chemistry.* **2019**;253:106230.
12. Marino V, **Dell'Orco D**. Evolutionary-Conserved Allosteric Properties of Three Neuronal Calcium Sensor Proteins. *Front Mol Neurosci.* **2019**;12:50.
13. Marino V, Dal Cortivo G, Oppici E, Maltese PE, D'Esposito F, Manara E, Ziccardi L, Falsini B, Magli A, Bertelli M, **Dell'Orco D**. A novel p.(Glu111Val) missense mutation in *GUCA1A* associated with cone-rod dystrophy leads to impaired calcium sensing and perturbed second messenger homeostasis in photoreceptors. *Hum Mol Genet.* **2018**;27(24):4204-4217

14. Vallone R, Dal Cortivo G, D'Onofrio M, **Dell'Orco D**. Preferential binding of Mg²⁺ over Ca²⁺ to CIB2 triggers an allosteric switch impaired in Usher Syndrome type 1J. *Front Mol Neurosci* **2018** , in press. doi: 10.3389/fnmol.2018.00274
15. Dal Cortivo G, Wagner GE, Cortelletti P, Padmanabha Das KM, Zangger K, Speghini A, **Dell'Orco D**, Meyer NH. Luminescent and paramagnetic properties of nanoparticles shed light on their interactions with proteins. *Sci Rep*. **2018**; 8(1):3420
16. Dindo M, Oppici E, **Dell'Orco D**, Montone R, Cellini B. Correlation between the molecular effects of mutations at the dimer interface of alanine-glyoxylate aminotransferase leading to primary hyperoxaluria type I and the cellular response to vitamin B6. *J Inherit Metab Dis*. **2017** Nov 6. doi: 10.1007/s10545-017-0105-8.
17. Marino V, Borsatto A, Vocke F, Koch KW, **Dell'Orco D**. CaF₂ nanoparticles as surface carriers of GCAP1, a calcium sensor protein involved in retinal dystrophies. *Nanoscale*. **2017**; 17;9(32):11773-11784.
18. Vocke F, Weisschuh N, Marino V, Malfatti S, Jacobson SG, Reiff CM, **Dell'Orco D**, Koch KW. Dysfunction of cGMP signalling in photoreceptors by a macular dystrophy-related mutation in the calcium sensor GCAP1. *Hum Mol Genet*. **2017**;26(1):133-144.
19. Marino V, **Dell'Orco D**. Allosteric communication pathways routed by Ca²⁺/Mg²⁺ exchange in GCAP1 selectively switch target regulation modes. *Sci Rep*. **2016**; 6:34277.
20. Butturini E, Gotte G, **Dell'Orco D**, Chiavegato G, Marino V, Canetti D, Cozzolino F, Monti M, Pucci P, Mariotto S. Intermolecular disulfide bond influences unphosphorylated STAT3 dimerization and function. *Biochem J*. **2016**; 473(19):3205-19
21. **Dell'Orco D**, Koch KW. Fingerprints of Calcium-Binding Protein Conformational Dynamics Monitored by Surface Plasmon Resonance. *ACS Chem Biol*. **2016**;11(9):2390-7.
22. Astegno A, La Verde V, Marino V, **Dell'Orco D**, Dominici P. Biochemical and biophysical characterization of a plant calmodulin: Role of the N- and C-lobes in calcium binding, conformational change, and target interaction. *Biochim Biophys Acta*. **2016**;1864(3):297-307.
23. Koch KW, and **Dell'Orco D**. Protein and signaling networks in vertebrate photoreceptor cells. *Front Mol Neurosci* **2015**; Nov 17;8:67.
24. Marino V., Scholten A, Koch KW, and **Dell'Orco D**. Two retinal dystrophy-associated missense mutations in *GUCA1A* with distinct molecular properties result in a similar aberrant regulation of the retinal guanylate cyclase. *Hum Mol Genet*. **2015**; 24(23):6653-66
25. Asteriti S, Dal Cortivo G, Pontelli V, Cangiano L, Buffelli M, and **Dell'Orco D**. Effective delivery of recombinant proteins to rod photoreceptors via lipid nanovesicles. *Biochem Biophys Res Comm* **2015**; 461(4):665-70
26. **Dell'Orco D**. Rhodopsin transient complexes investigated by systems biology approaches. *Methods in Molecular Biology* **2015**; 1271:251-63
27. **Dell'Orco D**, Koch KW. Transient complexes between dark rhodopsin and transducin: circumstantial evidence or physiological necessity? *Biophys J*. **2015**; 108(3):775-7
28. Zerni E, Grigoriev I, Nazipova A, Scholten A., Kolpakova T, Zinchenko D, Kazakov A, Senin I, Permyakov S, **Dell'Orco D** , Philippov P, and Koch KW. Regulatory function of the C-terminal segment of guanylate cyclase-activating protein 2. *Biochim Biophys Acta*. **2015**;1854(10 Pt A):1325-37
29. Robin J, Brauer R, Sulmann S, Marino V, **Dell'Orco D**, Lienau C, and Koch KW. Differential nanosecond protein dynamics in homologous calcium sensors. *ACS Chem Biol*. **2015**; 10(10):2344-52
30. Köster M, **Dell'Orco D**, and Koch KW. The interaction network of rhodopsin involving the heterotrimeric G-protein transducin and the monomeric GTPase Rac1 is determined by distinct binding processes. *FEBS J*. **2014**; 281(23):5175-85.

31. Astegno A, Maresi E, Marino V, Dominici P, Pedroni M, Piccinelli F, and **Dell'Orco D**. Structural plasticity of calmodulin on the surface of CaF₂ nanoparticles preserves its biological function. *Nanoscale*. **2014**; 6(24):15037-47
32. Marino V, Sulmann , Koch KW, and **Dell'Orco D**. Structural effects of Mg²⁺ on the regulatory states of the neuronal calcium sensors operating in vertebrate phototransduction. *BBA-Mol Cell Res* **2014**; 1853(9):2055-65.
33. Butturini E, Darra E, Chiavegato G, Cellini B, Cozzolino F, Monti M, Pucci P, **Dell'Orco D**, Mariotto S. S-glutathionylation at Cys328 and Cys542 impairs STAT3 phosphorylation. *ACS Chem Biol* **2014**; 9(8):1885-93
34. **Dell'Orco D**, Sulmann S, Zigel P, Marino V and Koch KW. Impact of cone-dystrophy related mutations in GCAP1 on a kinetic model of phototransduction. *Cell Mol Life Sci*. **2014**, 71(19):3829-40
35. Sulmann S, **Dell'Orco D**, Marino V, Behnen P, and Koch KW. Conformational changes in calcium-sensor proteins under molecular crowding conditions. *Chemistry* **2014**; 20(22):6756-62
36. **Dell'Orco D**, Lundqvist M, Linse S and Cedervall T. Mathematical modeling of the protein corona: implications for nanoparticulate delivery systems. *Nanomedicine* **2014**; 9(6):851-8
37. Invergo BM, **Dell'Orco D**, Montanucci L, Koch KW and Bertranpetit J. A comprehensive model of the phototransduction cascade in mammalian rod cells. *Mol Biosyst*. **2014**; 10(6):1481-9
38. Marino V, Astegno A, Pedroni M, Piccinelli F and **Dell'Orco D**. Nanodevice-induced conformational and functional changes in a prototypical calcium sensor protein. *Nanoscale* **2014**; 6(1):412-23
39. Aquila M, Benedusi M, **Dell'Orco D**. Biophysical characterization of antimicrobial peptides activity: from in vitro to ex vivo techniques. *Curr Protein Pept Sci*. **2013**;14(7):607-16.
40. Mariani S, **Dell'Orco D**, Feline A, Raimondi F, Fanelli F. Network and atomistic simulations unveil the structural determinants of mutations linked to retinal diseases. *PLoS Comput Biol*. **2013**; 9(8):e1003207
41. Zägel P, **Dell'Orco D**, Koch KW. The dimerization domain in outer segment guanylate cyclase is a Ca²⁺-sensitive control switch module. *Biochemistry*. **2013**;52(30):5065-74
42. **Dell'Orco D**. A physiological role for the supramolecular organization of rhodopsin and transducin in rod photoreceptors. *FEBS Letters* **2013**, 587(13):2060-6
43. Invergo BM, Montanucci L, Koch KW, Bertranpetit J, and **Dell'Orco D**. Exploring the rate-limiting steps in visual phototransduction recovery by bottom-up kinetic modeling. *Cell Commun Signal*. **2013**, 11(1):36
44. Koch KW, **Dell'Orco D**. A Calcium-Relay Mechanism in Vertebrate Phototransduction. *ACS Chem Neurosci*. **2013**, 4(6):909-17
45. Aquila M, Benedusi M, Koch KW, **Dell'Orco D**. and Rispoli G. Divalent cations modulate membrane binding and pore formation of a potent antibiotic peptide analog of alamethicin. *Cell Calcium* **2013**, 53(3):180-6
46. Cangiano L., **Dell'Orco D**. Detecting single photons: a supramolecular matter? *FEBS Letters* **2013**, 587(1):1-4.
47. **Dell'Orco D**, The Importance of the Protein Corona for Successful Nanodevice Design and Delivery. *J Nanomedic Biotherapeu Discover* **2012**, 2:1
48. **Dell'Orco D**, Sulmann, S., Linse, S., Koch KW. Dynamics of conformational Ca²⁺-switches in signaling networks detected by a planar plasmon device. *Analytical Chemistry* **2012**, 84(6):2982-9
49. **Dell'Orco D**, Lundqvist M, Cedervall T, Linse S. Delivery succes rate of engineered nanoparticles in the presence of the protein corona: a systems-level screening. *Nanomedicine* **2012**, 8(8):1271-81
50. **Dell'Orco D**, Koch KW. A dynamic scaffolding mechanism for rhodopsin and transducin interaction in vertebrate vision. *Biochem J*. **2011**; 440(2):263-271

51. Zernii EY, Komolov KE, Permyakov SE, Kolpakova T, **Dell'Orco D**, Poetzsch A, Knyazeva EL, Grigoriev II, Permyakov EA, Senin II, Philippov PP, Koch KW. Involvement of the recoverin C-terminal segment in recognition of the target enzyme rhodopsin kinase. *Biochem J*. **2011**; 435(2):441-50.
52. **Dell'Orco D**, Koch KW. Systems biochemistry approaches to vertebrate phototransduction: towards a molecular understanding of disease. *Biochem Soc Trans*. **2010**; 38(5):1275-80.
53. **Dell'Orco D**, Mueller M, Koch KW. Quantitative detection of conformational transitions in a calcium sensor protein by surface plasmon resonance. *Chem Commun*. **2010**; 46(39):7316-8.
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