

# Susana Rocha

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Born in Torres Novas, Portugal 26-01-1983



## Education

**KU Leuven**, (Leuven, Belgium)

PhD in Chemistry, *May 2014*

*Dissertation Topic: "Single enzyme kinetics"*

**Instituto Superior Técnico**, (Lisbon, Portugal)

Licenciatura (Bachelor and Master) in Chemistry, *September 2006* (classification 17/20)

## Scientific Career

**2014.10-present: Postdoctoral Fellow (FWO)**

Molecular Imaging and Photonics, Department of Chemistry, KU Leuven, Belgium

**2017.03-2017-06: Visiting Researcher (FWO travel grant)**

Molecular Materials, Faculty of Science, Radboud University, Nijmegen, The Netherlands

**2014.05-2014.09: Postdoctoral Researcher**

Molecular Imaging and Photonics, Department of Chemistry, KU Leuven, Belgium

## Research Interests & Expertise

- Cell-matrix interactions and the influence of mechanical stimuli in cellular behavior (expertise in molecular cloning, fluorescent labelling, cell culture, transient expression of specific proteins and gene editing).
- Structural and mechanical characterization of polymers and hydrogels (using advanced fluorescence microscopy and micro-rheology).
- Interaction between proteins (enzymes, receptors, structural proteins) and the cellular membrane.
- Membrane organization (micro-domains, rafts) and cell signaling.
- Fluorescence microscopy and spectroscopy, more concretely single molecule fluorescence microscopy (single particle tracking, FRET, super-resolution microscopy).
- Software development (using Matlab®)

## Invited talks and seminars

- Invited seminar at TU Eindhoven, October 2018, *Imaging the forces driving cellular behaviour*, Eindhoven (The Netherlands)
- Invited talk at the workshop 'Imaging interactions with fluorescence: from the Nano-to-Macro scale', *Single-molecule Fluorescence Microscopy: a powerful tool to study protein-protein interactions* September 2018, Hasselt (Belgium)

- Invited seminar at Institute of Molecular Materials, *Single-molecule Fluorescence Microscopy: a powerful tool to study molecular dynamics and organization*, March 2017, Nijmegen (The Netherlands)
- Invited seminars at the course of 'Nanobiology' (KU Leuven), *Labels and Labelling techniques*, March 2018 and February 2017, Leuven (Belgium)
- Invited talk at the Annual meeting of the Belgium Society for Microscopy, *Single Molecule Enzymatics*, September 2016 (Best PhD thesis award)
- Invited talk at the workshop 'Single-molecule fluorescence microscopy meets virology', *Tetherin-HIV interaction*, June 2016, Leuven (Belgium)
- Invited seminar at the symposium 'Groningen Meets Leuven: A One-Day Symposium', *Phospholipase C activity visualized by single particle tracking*, June 2011, Leuven (Belgium)

In addition, I have given a total of **8 oral presentations** at national and international conferences and have received an award for best student talk (full list at the end of the document).

### Research Project Financing

- FWO research grant: "Linking properties of biomimetic polymer matrices to stem cell fate: a microscopy study", **36k€** (promotor: myself), 2018-2020
- FWO project: "Polymer dynamics studied by super-resolution microscopy", **499 k€** (promotor: prof. Johan Hofkens, co-promotors: prof. Peter Dedecker and myself), 2017-2021
- Internal KU Leuven funding, C1 project: "Next-generation microscopy methods for unraveling complex signaling pathways", **583 k€** (promotor: prof. Hideaki Mizuno, co-promotors: Dr. Jelle Hendrix and myself), 2016-2020

In April 2018 I have applied for an additional FWO research grant as promotor ("Imaging the forces driving cancer progression", **39 k€**) and a FWO project as co-promotor ("Drug/gene combination delivery system for reversal of multi-drug resistance", **449 k€** promotor: Prof. Hiroshi Uji-i). In addition, 4 out of the 6 PhD students working under my supervision are receiving personal fellowships.

### Honors and Awards

- 2017** Travel grant for a 4-month research stay at Radboud University, Nijmegen (NL), FWO
- 2016** Best PhD thesis award in the area of Life Sciences, Belgian Society of Microscopy
- 2007** Best student talk at Single Molecule Spectroscopy Workshop, PicoQuant
- 2005** Merit Scholarship for excellence in Chemistry studies, Caixa Geral Depósitos<sup>1</sup>
- 2004** Merit Scholarship for excellence in Chemistry studies, Universidade Técnica de Lisboa<sup>2</sup>
- 2003** Merit Scholarship for excellence in Chemistry studies, Universidade Técnica de Lisboa<sup>2</sup>
- 2002** Merit Scholarship for excellence in Chemistry studies, Universidade Técnica de Lisboa<sup>2</sup>

### Fellowships

- 2015** Post-doctoral fellowship by FWO (success rate 25%)
- 2014** Post-doctoral fellowship by KU Leuven (BOF-PDM, success rate 31%)
- 2006** PhD fellowship from the Portuguese Foundation for Science and Technology (FCT, ranked first for the area of Chemistry, success rate 51%)
- 2005** Erasmus scholarship for 9-month stay at KU Leuven, Belgium

### Teaching Activities

**2018**

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<sup>1</sup> one grant awarded for the second best out of the 200 students of the Chemistry undergraduate program

<sup>2</sup> one grant awarded for the best out of the 200 students of the Chemistry undergraduate program

Theoretical lectures on the course “Advanced Light Microscopy” in Hasselt University, on the subjects of super-resolution imaging, single particle tracking and *in vivo* labelling.

#### **2015-present**

Theoretical lecture(s) on the course “Advanced Fluorescence Microscopy” in KU Leuven (single molecule microscopy, GFP, fluorescent labels, *in vivo* labelling and CRISPR/Cas9 gene editing).

#### **2008-present**

Practical class on the course “Advanced Fluorescence Microscopy” in KU Leuven on the subjects of super-resolution imaging and single particle tracking

### **Scientific Output**

- **38 articles** (5 first author, 4 corresponding author) in peer-reviewed internationally recognized journals including top journals such as Cell, Nature, Nature Communications, Nature Nanotechnology, Langmuir, ACS Nano and PLoS Pathogens. According to Web of Science citation report on September 2018, these contributions have been collectively cited over 1000 times, with an average of ca. **30 citations per item**. This has resulted in a current **h-index of 15**. I also published 4 book chapters, 2 of which as first author. The complete list of publications can be found at the end of the document and at Lirias ([link](#)).
- Development of **freely accessible and user-friendly software** for advanced image analysis for different groups within KU Leuven and other universities. Some of the most used software includes super-resolution algorithms based on single molecule localization, single particle tracking, FRET using wide-field, AFM/fluorescence correlation among many others.
- Scientific communication: 7 invited talks/seminars, 8 abstract-selected talks, 7 abstract-selected poster presentations (complete list at the end of the document). In addition, I developed and maintain a personal website ([link](#))

### **International mobility**

- Planned 3 month stay at the laboratory of Dr. Rodrigo Barderas (Instituto Salud D. Carlos III, Madrid, Spain), from December 2018 to March 2019 (requested EMBO short-term fellowship, awaiting decision)
- On March of 2017 I went for 4 months to the group of Prof. Paul Kouwer (Radboud University Nijmegen, The Netherlands) to learn how to synthesize and manipulate PIC-based hydrogels. From this visit we started a collaboration, involving the exchange of 2 PhD students and several ongoing projects. One PhD alumni applied for a Marie-Curie fellowship to join my research group in Leuven.
- On January of 2009 I went to laboratory of prof. Marcus Sauer (Bielefeld University, Germany), where I learned direct stochastic optical reconstruction microscopy (dSTORM). With the knowledge acquired there, I returned to the laboratory of prof. Johan Hofkens and implemented this new method for super-resolution fluorescence image. dSTORM is currently applied in the laboratory as a standard imaging technique.

### **Supervision**

I am currently supervising 6 PhD students and am in the supervisory committee of additional 3 students. In the past I have been co-promotor of 1 PhD student (finished on March 2017) and have been part of the examination committee of 3 other PhD students.

#### **Current PhD students**

- Quinten Coucke, Chemistry Department, KU Leuven  
“Proteomics and fluorescence based profiling of metastatic colorectal cancer markers”, co-promotor (started October 2018, promotor: prof. Johan Hofkens)

- Johannes Vandaele, Chemistry Department, KU Leuven  
“Studying nanoscale heterogeneities and dynamics of new biomimetic polymer gels using advanced microscopy”, co-promotor (started November 2017, promotor: prof. Johan Hofkens)
- Indra van Zundert, Chemistry Department, KU Leuven (**FWO grant**)  
“Next-generation cancer therapy: gene editing meets nanotechnology”, co-promotor (started October 2017, promotor: prof. Hiroshi Uji-i)
- Boris Louis, Chemistry Department, KU Leuven (**FWO grant**)  
“Fluorescence microscopy: a powerful tool to unravel polymer dynamics”, co-promotor (started January 2017, promotor: prof. Johan Hofkens)
- Danai Laskaratou, Chemistry Department, KU Leuven (**FLOF grant**)  
“Regulation of cell signaling via pseudokinase ErbB3 receptors”, co-promotor (started October 2016, promotor: prof. Hideaki Mizuno)
- Monica Ricci, Chemistry Department, KU Leuven (**FWO-SB grant**)  
“Nanowire based intracellular delivery: a versatile tool for gene therapy”, co-promotor (started October 2015, promotor: prof. Hiroshi Uji-i)

#### Past PhD students

- Herlinde Dekeersmaecker, Chemistry Department, KU Leuven (**IWT grant**)  
“Superresolution fluorescence microscopy based techniques for the study of signal transduction”, co-promotor (defended February 2017, promotor: prof. Hideaki Mizuno)

#### Other students

- Master thesis (co-)promotor of 4 students
- Master internship (co-)promotor of 6 students between 2011 and 2013 (Master Chemistry and Master Nanotechnology)
- Master thesis daily supervisor of 3 master students between 2007 and 2010
- Bachelor thesis promotor of 9 students (KU Leuven and Hasselt University)

#### Relevant Collaborations

- Prof. Paul Kouwer (Radboud University Nijmegen, The Netherlands): study of biomimetic polymer hydrogels using microscopy
- Dr. Rodrigo Barderas (Instituto de Salud Carlos III, Madrid, Spain): investigating the role of mechanical forces in the proteomics of cancer
- Prof. Olivier De Wever (Ghent University, Belgium)
- Prof. Lorenzo Albertazzi (Technical University of Eindhoven, The Netherlands): using electron microscopy to reveal the intracellular fate of new drug delivery systems
- Prof. Theo Lasser (École Fédérale de Lausanne, Switzerland) and prof. Peter Dedecker (KU Leuven): development of a multi-plane wide field microscope
- Prof. Hans van Oosterwyck (KU Leuven, Belgium) and Prof. Jelle Hendrix (Hasselt University / KU Leuven, Belgium): using FRET sensors to investigate cellular forces during angiogenesis
- Prof. Adrian Ranga (KU Leuven, Belgium): using synthetic materials to direct stem cell differentiation
- Prof. Hideaki Mizuno (KU Leuven, Belgium) and Prof. Jelle Hendrix (Hasselt University / KU Leuven, Belgium): development of fluorescence fluctuation based microscopy methods to study protein-protein interactions (granted KU Leuven internal funding)

In addition, I have several ongoing collaborations where my expertise in fluorescence microscopy, *in vivo* labelling, image processing and data analysis are crucial for the success of the project.

### **Commissions of trust**

I review papers on a regular basis for different peer-reviewed scientific journals, such as Scientific Reports, Small, PlosOne, Angewandte Chemie and IEEE Access.

### **Organization of conferences/scientific meeting**





I have helped the practical organization of International Conference of Photochemistry (ICP2013, Leuven, 2013) and of the Methods and Applications in Fluorescence (MAF15, Bruges, 2017). Since 2017 I organized the meetings of the division of Molecular Imaging Photonics (around 60 people, 10 meeting per year).

### **Career Breaks**

During my scientific career I have had three career breaks, all related to parenthood. On April of 2013 I gave birth to my first child. Due to some complications during my pregnancy, 3 months before the delivery I worked from home, developing software for image analysis. After the birth, I stayed at home for an additional period of 3 months (April 2013 to July 2013). On my second pregnancy there were no complications, and my career break was only the 15 weeks allowed in Belgium (from July 2015 until October 2015). After a 4-month stay abroad in 2017, I decided to take 3 months of parental leave to spend more time with my family (from July to September of 2017). In addition to these extended career breaks, due to the limited familiar support arising from living abroad, between 2013 and 2017 I have reduced the travel to conferences and symposium to a minimum. Nowadays I am more engaged in scientific discussions (in 2018 I attended 6 conferences/meetings).

## Complete List of Publications and Communications

### Papers in international scientific periodicals with referees

- (1) Zurnic, I., Dirix, L., Lemmens, V., Borrenberghs, D., **Rocha, S.**, Hofkens, J., Christ, F., Hendrix, J. and Debysen, Z., Capsid labeling of HIV particles reveals uncoating at the nuclear envelope and questions role of nuclear capsid during integration, *submitted*
- (2) Ross, S.R., Rodríguez-Mora, S., De Wit, F., Bermejo, M., López Huertas, M.R., Mateos, E., Marti, P., **Rocha, S.**, Christ, F., Debeyser, Z., Padilla, J.J.V., Coiras, M., Alcamí, J., The mutation of transportin-3 gene that causes limb girdle muscular dystrophy 1F induces protection against HIV-1 infection, *submitted*
- (3) Ripoll-Lorente, C., Resa, S., Miguel, D., Puente-Muñoz, V., Herrero-Foncubierta, P., Paredes, J.M., Ruedas-Rama, M.J., Martín, M., Roldán, M., **Rocha, S.**, Dekeersmaecker, H., Hofkens, J., Cuerva, J.M., Orte, A., Thiophene ring as a new and noncharged carrier to mitochondria, *submitted*
- (4) Fortuni, B., Inose, T., Ricci, M., Fujita, Y., Masuhara, A., Fron, E., Mizuno, Hideaki, M., Latterini, L., **Rocha, S.** , Uji-i, H., Layer-by-layer surface modification of nanoparticles for highly efficient multifunctional drug delivery systems, *Scientific Reports*, *under revision*
- (5) De Keersmaecker, H., Camacho, R., Rantasa, D.M., Fron, E., Uji-i, H., Mizuno, H., **Rocha, S.** , Mapping transient protein interactions at the nanoscale in living mammalian cells, *ACS Nano*, DOI: 10.1021/acsnano.8b01227
- (6) Eelen, G., Dubois, C., Cantelmo, A.R., Goveia, J., Brüning, U., DeRan, M., Jarugumilli, G., van Rijssel, J., Saladino, G., Comitani, F., Zecchin, A., **Rocha, S.**, Huang, H., Vandekeere, S., Kalucka, J., Lange, C., Morales-Rodriguez, F., Cruys, B., Treps, L., Ramer, L., Vinckier, S., Brepoels, K., Wyns, S., Souffreau, J., Schoonjans, L., Lamers, W., Wu, Y., Hastraete, J., Hofkens, J., Liekens, S., Cubbon, R., Ghesquière, B., Dewerschin, M., Gervasio, F.L., van Buul, J., Wu, X., Carmeliet, P., Unexpected role of glutamine synthetase in vessel sprouting, *Nature*, 561, pp. 63 (2018)
- (7) Parveen, N., Borrenberghs, D., **Rocha, S.** , Hendrix, J., Single Viruses on the Fluorescence Microscope: Imaging Molecular Mobility, Interactions and Structure Sheds New Light on Viral Replication, *Viruses*, 10(5), pp. 250 (2018)
- (8) Dirix, L., Kennes, K., Fron, E., Debeyser, Z., van der Auweraer, M., Hofkens, J., **Rocha, S.** , Photoconversion of Far-Red Organic Dyes: Implications for Multicolor Super-Resolution Imaging, *ChemPhotoChem*, 2, pp. 433 (2018)
- (9) Frederickx, W., **Rocha, S.**, Fujita, Y., Kennes, K., De Keersmaecker, H., De Feyter, S., Uji-i, H., Vanderlinden, W., Orthogonal Probing of Single-Molecule Heterogeneity by Correlative Fluorescence and Force Microscopy, *ACS Nano*, 12(1), pp.168 (2018)
- (10) van Vliet, A.R., Giordano, F., Gerlo, S., Segura, I., Van Eygen, S., Molenberghs, G., **Rocha, S.**, Houcine, A., Derua, R., Verfaillie, T., Vangindertael, J., De Keersmaecker, H., Waelkens, E., Tavernier, J., Hofkens, J., Annaert, W., Carmeliet, P., Samali, A., Mizuno, H., Agostinis, P., The ER Stress Sensor PERK Coordinates ER-Plasma Membrane Contact Site Formation through Interaction with Filamin-A and F-Actin Remodeling, *Molecular Cell*, 65(5), pp. 885-899 (2017)

- (11) De Keersmaecker, H., Fron, E., **Rocha, S.**, Kogure, T., Miyawaki, A., Hofkens, J. and Mizuno, H., Photoconvertible property of LSSmOrange applicable for single emission band optical highlighting, *Biophysical Journal*, 5(6), pp.1014 (2016)
- (12) Borrenberghs, D.\*, Dirix, L.\*, De Wit, F., **Rocha, S.**, Blokken, J., De Houwer, S., Gijsbers, R., Christ, F., Hofkens, J., Hendrix, J. and Debyser, Z., Dynamic integrase oligomerization orchestrates HIV nuclear entry, *Scientific Reports*, 6, 36485 (2016)
- (13) Su, L., Yuan, H., Lu, G., **Rocha, S.**, Orrit, M., Hofkens, J. and Uji-i, H. Super-resolution localization and defocused fluorescence microscopy on resonantly coupled single-molecules single-nanorods hybrids, *ACS Nano*, DOI: 10.1021/acsnano.5b07294
- (14) Fron, E., De Keersmaecker, H., **Rocha, S.**, Baeten, Y., Lu, G., Uji-i, H., Van der Auweraer, M., Hofkens, J., Mizuno, H., Mechanism Behind the Apparent Large Stokes Shift in LSSmOrange Investigated by Time-Resolved Spectroscopy, *The Journal of Physical Chemistry B*, 119(47), pp. 14880-91 (2015)
- (15) Vangindertael, J., Beets, I., **Rocha, S.**, Dedecker, P., Schoofs, L., Vanhoorelbeeke, K., Hofkens, J., Mizuno, H., Super-resolution mapping of glutamate receptors in *C. elegans* by confocal correlated PALM, *Scientific Reports*, 5, 13532 (2015)
- (16) **Rocha, S.**, De Keersmaecker, H., Uji-i, H., Hofkens, J., Mizuno, H. Photoswitchable fluorescent proteins for superresolution fluorescence microscopy circumventing the diffraction limit of light, *Methods in Molecular Biology*, 1076, pp. 793-812 (2014)
- (17) Su, L., Lu, G., Kenens, B., **Rocha, S.**, Fron, E., Yuan, H., Chen, C., Van Dorpe, P., Roeflaers, M.B.J., Mizuno, H., Hofkens, J., Hutchison, J.A., Uji-i, H., Visualization of molecular fluorescence point spread functions via remote excitation switching fluorescence microscopy, *Nature Communications*, 6, 6287 (2015)
- (18) Lu, G., De Keersmaecker, H., Su, L., Kenens, B., **Rocha, S.**, Fron, E., Chen, C., Van Dorpe, P., Mizuno, M., Hofkens, J., Hutchison, J.A., Uji-i, H., Live-Cell SERS Endoscopy Using Plasmonic Nanowire Waveguides. *Advanced Materials* 26(30), pp. 5124-28 (2014)
- (19) Borrenberghs, D., Thys, W., **Rocha, S.**, Demeulemeester, J., Dedecker, P., Hofkens, J., Debyser, Z., Hendrix, J. Viruses as nanoscopic test tubes for quantifying protein-protein interactions: Feasibility and application to the HIV-1 integrase enzyme oligomerization. *ACS Nano*, 8(4), pp.3531-45 (2014)
- (20) De Houwer, S., Demeulemeester, J., Thys, W., **Rocha, S.**, Dirix, L., Gijsbers, R., Christ, F., Debyser, Z. The HIV-1 Integrase Mutant R263A/K264A Is 2-fold Defective for TRN-SR2 Binding and Viral Nuclear Import, *Journal of Biological Chemistry*, 289(36), pp. 25351-61 (2014)
- (21) Hutchison, J., Uji-i, H., Deres, A., Vosch, T., **Rocha, S.**, Mueller, S., Bastian, A., Enderlein, J., Nourouzi, H., Chen, L., Herrmann, A., Muellen, K., De Schryver, F., Hofkens, J., A surface-bound molecule undergoing optically-biased Brownian rotation. *Nature Nanotechnology*, 9(2), pp. 131-136 (2014)
- (22) Notelaers, K., **Rocha, S.**, Paesen, R., Swinnen, N., Vangindertael, J., Meier, J.C., Rigo, J.M., Ameloot, M., Hofkens, J., Membrane distribution of the glycine receptor alpha3 studied by optical super-resolution microscopy, *Histochemistry and Cell Biology*, 142(1), pp.79-90 (2014)

- (23) Ghosh, A., Passaris, I., Mebrhatu, M. T., **Rocha, S.**, Vanoirbeek, K., Hofkens, J., Aertsen, A., Cellular localization and dynamics of the Mrr Type IV restriction endonuclease of *Escherichia coli*, *Nucleic Acid Research*, 42(6), pp.3908-18 (2014)
- (24) **Rocha, S.**, De Keersmaecker, H., Vanhoorelbeke, K., Martens, J.A., Hofkens, J., Uji-i, H., Membrane remodeling processes induced by phospholipase action. *Langmuir*, 30(16), pp.4743-51 (2014)
- (25) **Rocha, S.\***, De Ceunynck, K.\* , De Meyer, S.F., Sadler, E., Uji-i, H., Deckmyn, H., Hofkens, J., Vanhoorelbeke, K., Single particle tracking of ADAMTS13 (a disintegrin and metalloprotease with thrombospondin type-1 repeats) molecules on endothelial von Willebrand factor strings, *Journal of Biological Chemistry* , 289(13), pp.8903-15 (2014)
- (26) Moeyaert, B., Bich, N.N., de Zitter, E., **Rocha, S.**, Clays, K., Mizuno, H., van Meervelt, L., Hofkens, J., Dedecker, P. A green-to-red photoconvertible Dronpa mutant for multimodal superresolution fluorescence microscopy. *ACS Nano*, 8(2), pp. 1664-73 (2014)
- (27) Fron, E., Sliwa, M., Adam, V., Michiels, J., **Rocha, S.**, Dedecker, P., Hofkens, J., Mizuno, H. Excited state dynamics of photoconvertible fluorescent protein Kaede revealed by ultrafast spectroscopy. *Photochemical & Photobiological Sciences*, 13, pp.867-874 (2014)
- (28) Notelaers, K., **Rocha, S.**, Paesen, R., Smisdom, N., De Clercq, B., Meier, J.C., Rigo, J.M., Hofkens, J., Ameloot, M. Analysis of  $\alpha 3$  GlyR single particle tracking in the cell membrane. *Biochimica et Biophysica Acta – Molecular Cell Research*, 1843(3), pp. 544–553 (2014)
- (29) **Rocha, S.\***, De Keersmaecker, H.\* , Fron, E., Uji-i, H., Hofkens, J., Mizuno, H, EGF receptor dynamics in EGF-responding cells revealed by functional imaging during single particle tracking. *Biophysical Reviews and Letters*, 8(3&4) pp.229-242 (2014)
- (30) De Bock, K., Georgiadou, M., Schoors, S., Kuchnio, A., Wong, B.W., Cantelmo, A.R., Quaegebeur, A., Ghesquiere, B., Cauwenberghs, S., Eelen, G., Phng, L.K., Betz, I., Tembuyser, B., Brepoels, K., Welti, J., Geudens, I., Segura, I., Cruys, B., Bifari, F., Decimo, I., Blanco, R., Wyns, S., Vangindertael, J., **Rocha, S.**, Collins, R.T., Munck, S., Daelemans, D., Imamura, H., Devlieger, R., Rider, M., Van Veldhoven, P.P., Schuit, F., Bartrons, R., Hofkens, J., Fraisl, P., Telang, S., DeBerardinis, R.J., Schoonjans, L., Vinckier, S., Chesney, J., Gerhardt, H., Dewerchin, M., Carmeliet, P. Role of PFKFB3-Driven Glycolysis in Vessel Sprouting. *Cell* 154(3) pp.651-663 (2013)
- (31) Notelaers, K., Smisdom, N., **Rocha, S.**, Janssen, D., Meier, J.C., Rigo, J.M., Hofkens, J., Ameloot, M. Ensemble and single particle fluorimetric techniques in concerted action to study the diffusion and aggregation of the glycine receptor  $\alpha 3$  isoforms in the cell plasma membrane. *Biochimica et Biophysica Acta - Biomembranes* 1818(12) pp.3131-3140 (2012)
- (32) Lin, H, Centeno, S.P., Su, L., Kenens, B., **Rocha, S.**, Sliwa, M., Hofkens, J., Uji-i, H. Mapping of Surface-Enhanced Fluorescence on Metal Nanoparticles using Super-Resolution Photoactivation Localization Microscopy. *ChemPhysChem* 13(4) pp.973-981 (2012)
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- (34) Lehmann, M., **Rocha, S.**, Mangeat, B., Blanchet, F., Uji-i, H., Hofkens, J., Piguet, V. Quantitative Multicolor Super-Resolution Microscopy Reveals Tetherin HIV-1 Interaction. *Plos Pathogens* 7(12) e1002456 (2011)
- (35) De Ceunynck, K., **Rocha, S.**, Feys, H.B., De Meyer, S.F., Uji-i, H., Deckmyn, H., Hofkens, J., Vanhoorelbeke, K. Local elongation of endothelial cell anchored von Willebrand factor strings precedes ADAMTS13 mediated proteolysis. *Journal of Biological Chemistry* 286(42) pp.36361-36367 (2011)
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- (37) Fron E, Deres A, **Rocha S**, Zhou G, Mullen K, De Schryver FC, Sliwa M, Uji-i H, Hofkens J, Vosch T, Unraveling Excited-State Dynamics in a Polyfluorene-Perylenediimide Copolymer, *Journal of Physical Chemistry B*, 114 pp.1277-1286 (2010)
- (38) Gudmand, M., **Rocha S**, Hatzakis N, Peneva K, Muellen K, Stamou D, Uji-i H, Hofkens J, Bjornholm T, Heimburg T., Influence of Lipid Heterogeneity and Phase Behavior on Phospholipase A(2) Action at the Single Molecule Level, *Biophysical Journal* 98 pp.1873-1882 (2010)
- (39) **Rocha, S.**, Hutchison, J.A., Peneva, K., Herrmann, A., Müllen, K., Skjöt, M., Jørgensen, C.I., Svendsen, A., Hofkens, J., Uji-i, H., Linking phospholipase mobility to activity by single molecule wide-field microscopy, *ChemPhysChem* 10(1) pp.151-161 (2009)
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- (41) Ramos, J.J.M., **Rocha, S.**, Diogo, H.P., Polymorphic forms of o-benzylphenol and slow molecular motions in the amorphous state, *Journal of Non-Crystalline Solids*, 344 pp.119-127 (2004)

\* authors with equal contribution; ✉ corresponding author

### Chapters in books

- (1) De Keersmaecker, H., Frederickx, W. Fujita, Y., De Feyter, S., Uji-i, H., **Rocha, S.** ✉, Vanderlinden, W., Correlative Atomic Force and Single-Molecule Fluorescence Microscopy of Nucleoprotein Complexes in Nanoscale Imaging in *Methods Molecular Biology* (Springer), *accepted for publication*
- (2) **Rocha, S.**, De Keersmaecker, H., Fron, E., Uji-i, H., Hofkens, J., Mizuno, H., Membrane distribution, organization and dynamics of EGF receptor studied by super-resolution imaging in *Super-resolution imaging in Medicine and Biology* (Taylor & Francis), 2016, chap 17, pages 347-371

- (3) Blank, K., **Rocha, S.**, De Cremer, G., Roeffaers, M.B.J., Uji-i, H., Hofkens, J. Watching individual enzymes at work in Single Molecule Spectroscopy In Chemistry, Physics And Biology (Elsevier), 2010, vol. 96 Pages 495-511
- (4) **Rocha, S.**, Verheijen, W., Braeckmans, K., Svendsen, A., Skjöt, M., De Schryver, F.C., Uji-i, H., Hofkens, J. Imaging of enzyme catalysis by wide field microscopy in Nano Biophotonics, Masuhara, H., Kawata, S., Tokunaga, F. Eds. (Elsevier), 2007, vol. 3, chap. 8.

### Posters in conferences

- (1) Dirix, L., Kennes, K., Fron, E., Debeyser, Z., van der Auweraer, M., Hofkens, J., **Rocha, S.**, *Photoconversion of Far-Red Organic Dyes: Implications for Multicolor Super-Resolution Imaging*, Poster presentation at the Single Molecule Localization Microscopy Symposium, 27-29 August 2018, Berlin (Germany)
- (2) De Keersmaecker, H., Mizuno, H., **Rocha, S.**, Hofkens, J., *Nanoscale interaction mapping in living cells*, Poster presentation at the Methods and Applications of Fluorescence, 10-13 September 2017, Brugge (Belgium)
- (3) **Rocha, S.**, Marini, M., De Keersmaecker, H., Hofkens, J., Mizuno, H., *Role of membrane heterogeneity in PLC $\beta$  mediated calcium signaling*. Poster presentation at Dutch Biophysics, 3-4 October 2016, NH Koningshof, Veldhoven (Netherlands)
- (4) **Rocha, S.**, Marini, M., De Keersmaecker, H., Mizuno, H., Hofkens, J., *Role of membrane heterogeneity in PLC $\beta$  mediated calcium signaling*. Poster presentation at Royal Belgian Society Microscopy meeting, 8-9 September 2016, Brussels (Belgium)
- (5) **Rocha, S.**, Hutchison, J.A., Peneva, K., Herrmann, A., Müllen, K., Skjöt, M., Jørgensen, C.I., Svendsen, A., Hofkens, J., Uji-i, H., *Linking Phospholipase Activity to Mobility*, Poster presentation at Advanced Light Microscopy Symposium, 23-24 September 2010, Gent (Belgium).
- (6) **Rocha, S.**, Hutchison, J.A., Peneva, K., Herrmann, A., Müllen, K., Skjöt, M., Jørgensen, C.I., Svendsen, A., Hofkens, J., Uji-i, H., *Linking Phospholipase Activity to Mobility*, Poster presentation at Gordon Research Conference on Single Molecule Approaches to Biology, 17-21 August 2008, Boston (USA).
- (7) **Rocha, S.**, Uji-i, H., Wöll, D., Braeckmans, K., Hofkens, J. *Imaging enzyme catalysis by wide field microscopy*. Poster presentation at International Symposium on Biomolecular Nanoscale Assemblies, 24-26 January 2007, Nano-Science Center University of Copenhagen, (Denmark)

### Oral communications in conferences

- (1) Louis, B., Vandaele, J., Liu, K., Kouwer, P., Camacho, R., **Rocha, S.**, *Microscopy toolbox for structural and mechanical characterisation of new biomimetic materials*, Oral presentation at the Annual Dutch meeting on Molecular and Cellular Biophysics, 2-3 October 2018, Veldhoven, (the Netherlands)
- (2) Louis, B., Vandaele, J., Liu, K., Kouwer, P., Camacho, R., **Rocha, S.**, *Microscopy toolbox for structural and mechanical characterisation of new biomimetic materials*, Oral presentation at

the Royal Belgium Society for Microscopy Meeting, 20-21 September 2018, Antwerpen (Belgium)

- (3) **Rocha, S.**, Marini, M., De Keersmaecker, H., Mizuno, H., Hofkens, J., *Nanoscale interaction mapping in living cells*, Oral presentation at the Single Molecule Localization Microscopy Symposium, 28-30 August 2016, Lausanne (Switzerland)
- (4) **Rocha, S.**, Lehmann, M., Mangeat, B., Blanchet, F., Uji-i H., Hofkens, J., Piguët, V. *Dual Color super-resolution microscopy reveals tetherin/HIV interaction*, Oral presentation at Annual Dutch meeting on Molecular and Cellular Biophysics, 3-4 October 2011, Veldhoven, (the Netherlands)
- (5) **Rocha, S.**, Uji-i, H., Hofkens, J. *Nanometer mapping of Protein- membrane interaction using wide-field microscopy*. Oral presentation at 15th PicoQuant Workshop, 15-18 September 2009, Berlin, (Germany)
- (6) **Rocha, S.**, Hutchison, J.A., Hofkens, J., Uji-i, H., Oral communication '*watching single enzymes at work*', on Young scientists towards the challenges of modern technology, Warsaw (Poland), 21-23 September 2009
- (7) **Rocha, S.**, Hutchison, J.A., Peneva, K., Herrmann, A., Müllen, K., Skjöt, M., Jørgensen, C.I., Svendsen, A., Hofkens, J., Uji-i, H., Oral communication '*watching single enzymes at work*', on 1stPyChem, Lisbon (Portugal), 15-17 October 2008
- (8) **Rocha, S.**, Hutchison, J.A., Uji-i, H., Hofkens, J. *Hopping and Scooting: Watching single enzyme molecules at work*. Oral presentation at 13th PicoQuant Workshop, 19-21 September 2007, Berlin, GERMANY (**received award for best student talk**)