

dr. Romana Schirhagl
Assistant Professor
Department of Biomedical Engineering: General
E-mail: r.schirhagl@umcg.nl
Direct phone: +31 627105324



Research interests

Diamond, Bioanalysis, Magnetometry, Metabolism, Cells, Molecular Imprinting, Imaging

Working experience

from 2014 University of Groningen University Medical Center Groningen Department of Biomedical Engineering as Tenure Track Assistant Professor leading the Bioimaging and Bioanalysis group
2011-2013 Postdoc at ETH-Zurich, Physics Department, Degen group
2010-2011 Postdoc at Stanford University, Chemistry Department, Zare group
2009-2010 Postdoc at Vienna University, Analytical Chemistry Department, Dickert group
2007-2009 PhD student at Vienna University, Analytical Chemistry Department, Dickert group

Education

2007-2009 Bachelor study in Biology at Vienna University (2nd degree not finished)
2003-2007 Diploma study in Chemistry (equivalent to a Bachelor+Masters finished one year below official minimal time) at Vienna University,
1995-2003 Grammar school (Bundesrealgymnasium Steyr)

Activities

European Material Research Society (E-MRS), Warsaw, Poland

Romana Schirhagl (Invited speaker)

18-Sept-2023 → 21-Sept-2023

The 2023 Fall Meeting of the European Materials Research Society (E-MRS)

Romana Schirhagl (Attendee)

18-Sept-2023 → 21-Sept-2023

Gordon Research Conference on Quantum Biology, Houston, USA

Romana Schirhagl (Invited speaker)

Mar-2023

Quantum Innovation 2022, Tokyo, Japan (online)

Romana Schirhagl (Invited speaker)

Nov-2022

Defects in Solids for Quantum Technologies (DSQT2022), Stockholm, Sweden

Romana Schirhagl (Invited speaker)

Jun-2022

IST Austria Institute Colloquium, Vienna, Austria

Romana Schirhagl (Invited speaker)

Mar-2022

33rd International Conference on Diamond and Carbon Materials (Event)

Romana Schirhagl (Member)

2022 → ...

Carl Zeiss Stiftung (External organisation)
Romana Schirhagl (Reviewer)
2022

CLEO/Europe-EQEC conference 2023 (Event)
Romana Schirhagl (Member)
2022

Czech Science Foundation (External organisation)
Romana Schirhagl (Reviewer)
2022

European Innovation Council and SMEs Executive Agency (EISMEA) of the European Commission (External organisation)
Romana Schirhagl (Reviewer)
2022

French funding organization inserm (External organisation)
Romana Schirhagl (Reviewer)
2022

Friedrich Maximilian University Erlangen (External organisation)
Romana Schirhagl (Reviewer)
2022

Institute Seminar, Stuttgart University, Stuttgart, Germany
Romana Schirhagl (Invited speaker)
2022

Quantum biology seminar series, UCLA, Los Angeles, USA (online)
Romana Schirhagl (Invited speaker)
2022

Termis conference, Krakow, Poland
Romana Schirhagl (Invited speaker)
2022

University of Melbourne (External organisation)
Romana Schirhagl (Advisor)
2022

Optics and Lasers 2021, Kyoto, Japan (online)
Romana Schirhagl (Invited speaker)
28-Jun-2021

2nd International conference on Pharma Industry & pharmaceuticals
Romana Schirhagl (Keynote speaker)
27-Mar-2021

Colloquium at Technische Universität Kaiserslautern, Kaiserslautern, Germany
Romana Schirhagl (Invited speaker)
2021

COMSATS University (External organisation)

Romana Schirhagl (Reviewer)
2021

German Research Foundation (External organisation)

Romana Schirhagl (Member of board)
2021

Hasselt University (External organisation)

Romana Schirhagl (Advisor)
2021

MRS fall meeting, Boston, USA

Romana Schirhagl (Invited speaker)
2021

NWO (External organisation)

Romana Schirhagl (Member of board)
2021 → ...

NWO (External organisation)

Romana Schirhagl (Reviewer)
2021

QUANTUM Seminar Wintersemester 2021/22, Johannes Gutenberg University, Mainz, Germany

Romana Schirhagl (Invited speaker)
2021 → 2022

Silesian Tech Univ, Silesian University of Technology, Fac Biomed Engn, Dept Biomat & Med Devices Engn (External organisation)

Romana Schirhagl (Advisor)
2021

Sir Henry (Publisher)

Romana Schirhagl (Peer reviewer)
2021

Biointerfaces 2020 conference, Zurich, Switzerland (online)

Romana Schirhagl (Invited speaker)
Aug-2020

External Reviewer

Romana Schirhagl (Consultant)
2020 → ...

External reviewer for PhD thesis

Romana Schirhagl (Member of Assessment Committee)
2020 → ...

External reviewer for PhD thesis

Romana Schirhagl (Examiner)
2020 → ...

Israeli Ministry of Science and Technology for the call "Indian-Israeli joint research cooperation" (External organisation)

Romana Schirhagl (Reviewer)
2020

Periyar University India (External organisation)

Romana Schirhagl (Reviewer)
2020

Sonderforschungsbereich (SFB) (External organisation)

Romana Schirhagl (Member)
2020 → 2021

Sonderforschungsbereich (SFB) (External organisation)

Romana Schirhagl (Member)
2020 → 2021

The University of Melbourne (External organisation)

Romana Schirhagl (Reviewer)
2020

Diamond magnetometry in a cell

Romana Schirhagl (Speaker)
16-Sept-2019 → 19-Sept-2019

PhD Day 2019

Romana Schirhagl (Invited speaker)
20-Jul-2019

Diamond and Single Photon Emitters

Romana Schirhagl (Speaker)
23-Jun-2019 → 28-Jun-2019

Imaging with Nanodiamond Probes

Romana Schirhagl (Keynote speaker)
19-Jun-2019 → 21-Jun-2019

UMCG bouwt brug

Romana Schirhagl (Speaker)
19-May-2019

WE-Heraeus Seminar

Romana Schirhagl (Speaker)
25-Mar-2019 → 28-Mar-2019

External adviser for PhD thesis

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

External adviser for tenure track evaluations

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

Frontiers in Physics (Journal)

Romana Schirhagl (Editorial board member)
1-Jan-2019 → 31-Dec-2019

Nanomaterials (Basel, Switzerland) (Journal)

Romana Schirhagl (Editorial board member)
1-Jan-2019 → 31-Dec-2019

NWO grants ENW KLEIN (External organisation)

Romana Schirhagl (Member)
1-Jan-2019 → 31-Dec-2019

Proposal reviewer

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

Proposal reviewer

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

Proposal reviewer

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

Proposal reviewing for GSMs PhD call

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

Reviewer

Romana Schirhagl (Consultant)
1-Jan-2019 → 31-Dec-2019

ZonMW grants for the call Enabling Technologies Hotels (External organisation)

Romana Schirhagl (Member)
1-Jan-2019 → 31-Dec-2019

Rosalind Franklin Univ Med & Sci (External organisation)

Romana Schirhagl (Member)
2019 → ...

W.J. Kolff Institute for Biomedical Engineering and Materials Science (KOLFF) (Organisational unit)

Romana Schirhagl (Member)
2019 → ...

Micro ESR: On chip magnetic resonance spectroscopy of microliter samples

Romana Schirhagl (Keynote speaker)
14-Aug-2018

DFG proposal reviewer

Romana Schirhagl (Consultant)
1-Jan-2018 → 31-Dec-2018

Dutch FOM (Dutch Physics Association) Projectruimte Grants (External organisation)

Romana Schirhagl (Member)
1-Jan-2018 → 31-Dec-2018

Award committee International Conference on Diamond and Carbon Materials Series (External organisation)

Romana Schirhagl (Member)
2018

Charles University

Romana Schirhagl (Visiting researcher)
2018

Department of Chemistry, Stanford University, Stanford, California, USA

Romana Schirhagl (Visiting researcher)
2018

Department of Physics, University of California, Santa Barbara, USA

Romana Schirhagl (Visiting researcher)
2018

Empa, Swiss Federal Laboratories for Materials Science & Technology (EMPA), Swiss Fed Labs Mat Sci & Technol, Lab Protect & Physiol

Romana Schirhagl (Visiting researcher)
2018

External adviser for PhD thesis Charles University in Prague

Romana Schirhagl (Advisor)
2018

Max Planck Society, Frankfurt, Germany

Romana Schirhagl (Visiting researcher)
2018 → ...

Proposal reviewer for German grant institution DFG

Romana Schirhagl (Advisor)
2018

Technical University of Munich (TUM)

Romana Schirhagl (Visiting researcher)
2018

External reviewer

Romana Schirhagl (Consultant)
1-Jan-2017 → 31-Dec-2017

External reviewer for the Czech Science Foundation (GACR).

Romana Schirhagl (Advisor)
2017 → 2018

Hasselt Diamond Workshop (External organisation)

Romana Schirhagl (Member)
2017 → ...

Hasselt Diamond Workshop (External organisation)

Romana Schirhagl (Member)
2017 → ...

External adviser

Romana Schirhagl (Consultant)

1-Jan-2016 → 31-Dec-2016

Chemical Society Reviews (Journal)

Romana Schirhagl (Editorial board member)

1-Jan-2015 → 31-Dec-2015

European Physical Society (EPS) (External organisation)

Romana Schirhagl (Member)

2015 → ...

Progress Physics Projectruimte (formerly FOM Projectruimte), NWO (External organisation)

Romana Schirhagl (Member)

2015 → 2018

American Chemical Society (External organisation)

Romana Schirhagl (Member)

2014 → ...

Deutsche Bunsen-Gesellschaft für physikalische Chemie e. V. (DBG) (External organisation)

Romana Schirhagl (Member)

2014 → ...

External adviser

Romana Schirhagl (Examiner)

2014 → ...

Frontiers in Materials : Translational Materials Science (Journal)

Romana Schirhagl (Editorial board member)

2014 → ...

W.J. Kolff Institute for Biomedical Engineering and Materials Science (KOLFF) (Organisational unit)

Romana Schirhagl (Member)

2014 → ...

The German Chemical Society (GDCh) (External organisation)

Romana Schirhagl (Member)

2013 → ...

QSIT - Quantum Science and Technology (External organisation)

Romana Schirhagl (Member)

2012 → 2014

The Royal Society of Chemistry (RSC) (External organisation)

Romana Schirhagl (Member)

2012 → ...

The Society for Molecular Imprinting (SMI) (External organisation)

Romana Schirhagl (Member)

2012 → ...

Austrian Scientists in Northern America (ASCINA) (External organisation)

Romana Schirhagl (Member)

2010 → ...

Austrian Chemical Society, Medicinal Chemistry (External organisation)

Romana Schirhagl (Member)

2007 → ...

Research output

Development of cholesterol imprinted polymer-based interfaces as smart sensors for detection of cholesterol in clinical samples

Hayat, H., Awan, F. R., Aziz, A., Schirhagl, R., Afzal, A., Mujahid, A., Jamil, A., Asim, T., Khan, W. S. & Bajwa, S. Z., 14-Feb-2024, In: *Journal of materials research*. 39, 3, p. 459-470 12 p.

Quantum Sensing of Free Radical Generation in Mitochondria of Single Heart Muscle Cells during Hypoxia and Reoxygenation

Fan, S., Gao, H., Zhang, Y., Nie, L., Bártolo, R., Bron, R., Santos, H. A. & Schirhagl, R., 30-Jan-2024, In: *Acs Nano*. 18, 4, p. 2982-2991 10 p.

Measuring free radicals with relaxometry: Pioneering steps for measurements in human semen

Li, H. T., Schirhagl, R., Eliveld, J., Reyes San Martin, C., Pronk, I., Hoek, A., Cantineau, A. & Mzyk, A., Dec-2023, In: *Diamond and Related Materials*. 140, A, 7 p., 110388.

Quantum Sensing for Detection of Zinc-Triggered Free Radicals in Endothelial Cells

Wojtas, D., Li, R., Jarzębska, A., Sułkowski, B., Zehetbauer, M., Schafler, E., Wierzbowski, K., Mzyk, A. & Schirhagl, R., Nov-2023, In: *Advanced Quantum Technologies*. 6, 11, 13 p., 2300174.

Quantum Sensing for Real-Time Monitoring of Drug Efficacy in Synovial Fluid from Arthritis Patients

Elías-Llumbet, A., Tian, Y., Reyes-San-Martin, C., Reina-Mahecha, A., Damle, V., Morita, A., van der Veen, H. C., Sharma, P. K., Sandovici, M., Mzyk, A. & Schirhagl, R., 27-Sept-2023, In: *Nano Letters*. 23, 18, p. 8406-8410 5 p.

Quantum Sensing of Free Radicals in Primary Human Granulosa Cells with Nanoscale Resolution

Lin, N., van Zomeren, K., van Veen, T., Mzyk, A., Zhang, Y., Zhou, X., Plosch, T., Tietge, U. J. F., Cantineau, A., Hoek, A. & Schirhagl, R., 27-Sept-2023, In: *ACS central science*. 9, 9, p. 1784-1798 15 p.

Fluorescent Nanodiamonds for Tracking Single Polymer Particles in Cells and Tissues

Li, R., Vedelaar, T. A., Sigaeva, A., Zhang, Y., Wu, K., Wang, H., Wu, X., Olinga, P., Włodarczyk-Biegun, M. K. & Schirhagl, R., 5-Sept-2023, In: *Analytical Chemistry*. 95, 35, p. 13046-13054 9 p.

Host-device interactions: exposure of lung epithelial cells and fibroblasts to nickel, titanium, or nitinol affect proliferation, reactive oxygen species production, and cellular signaling

Pouwels, S. D., Sigaeva, A., de Boer, S., Eichhorn, I. A., Koll, L., Kuipers, J., Schirhagl, R., Heijink, I. H., Burgess, J. K. & Slebos, D.-J., 24-Jul-2023, In: *Journal of Materials Science : Materials in Medicine*. 34, 7, p. 38 13 p.

Optimizing Data Processing for Nanodiamond Based Relaxometry

Vedelaar, T. A., Hamoh, T. H., Martinez, F. P. P., Chipaux, M. & Schirhagl, R., 5-Jul-2023, (E-pub ahead of print) In: *Advanced Quantum Technologies*. 2300109, 9 p.

A mesh network of MnO nanowires and CNTs reinforced by molecularly imprinted structures for the selective detection of para-nitrophenol

Tehseen, B., Rehman, A., Schirhagl, R., Ashraf, N., Ullah, A., Asim, T., Khan, W. S. & Bajwa, S. Z., Jul-2023, In: *Journal of materials research*. 38, 14, p. 3560-3571 12 p.

Melt electrowritten scaffolds containing fluorescent nanodiamonds for improved mechanical properties and degradation monitoring

Wu, X., Vedelaar, T., Li, R., Schirhagl, R., Kamperman, M. & Włodarczyk-Biegun, M. K., Jul-2023, In: *Bioprinting*. 32, 10 p., e00288.

Prospects of Using Machine Learning and Diamond Nanosensing for High Sensitivity SARS-CoV-2 Diagnosis

Qureshi, S. A., Aman, H. & Schirhagl, R., Jul-2023, In: *Magnetochemistry*. 9, 7, 15 p., 171.

Biocompatible Film-Coating of Magnetic Soft Robots for Mucoadhesive Locomotion

Wang, C., Mzyk, A., Schirhagl, R., Misra, S. & Kalpathy Venkiteswaran, V., 23-Jun-2023, In: *Advanced Materials Technologies*. 8, 12, 13 p., 2201813.

Diamond Quantum Sensing Revealing the Relation between Free Radicals and Huntington's Disease

Fan, S., Nie, L., Zhang, Y., Ustyantseva, E., Woudstra, W., Kampinga, H. H. & Schirhagl, R., 21-Jun-2023, In: *ACS central science*. 9, 7, p. 1427-1436 10 p.

Fluorescent nanodiamond labels: Size and concentration matters for sperm cell viability

San-Martin, C. R., Zhang, Y., Hamoh, T., Berendse, L., Klijn, C., Li, R., Sigaeva, A., Kawałko, J., Li, H. T., Tehrani, J., Mzyk, A. & Schirhagl, R., Jun-2023, In: *Materials Today Bio*. 20, 7 p., 100629.

Lipid peroxidation in diamond supported bilayers

Ortiz Moreno, A. R., Li, R., Wu, K. & Schirhagl, R., 7-May-2023, In: *Nanoscale*. 15, 17, p. 7920-7928 9 p.

Elastic moduli of polyelectrolyte multilayer films regulate endothelium-blood interaction under dynamic conditions

Imbir, G., Trembecka-Wójciga, K., Ozga, P., Schirhagl, R. & Mzyk, A., May-2023, In: *Colloids and Surfaces B: Biointerfaces*. 225, 9 p., 113269.

Fast, Broad-Band Magnetic Resonance Spectroscopy with Diamond Widefield Relaxometry

Mignon, C., Ortiz Moreno, A. R., Shirzad, H., Padamati, S. K., Damle, V. G., Ong, Y., Schirhagl, R. & Chipaux, M., 28-Apr-2023, In: *ACS Sensors*. 8, 4, p. 1667-1675 9 p.

Intracellular behavior of nanodiamonds functionalized with a zwitterionic shielding moiety

Sigaeva, A., Merz, V., Sharmin, R., Schirhagl, R. & Krueger, A., 28-Apr-2023, In: *Journal of Materials Chemistry C*. 11, 20, p. 6642-6650 9 p.

Recent advancements in polymer matrix nanocomposites for bone tissue engineering applications

Sagadevan, S., Schirhagl, R., Rahman, M. Z., Bin Ismail, M. F., Lett, J. A., Fatimah, I., Mohd Kaus, N. H. & Oh, W. C., Apr-2023, In: *Journal of drug delivery science and technology*. 82, 13 p., 104313.

Detecting the metabolism of individual yeast mutant strain cells when aged, stressed or treated with antioxidants with diamond magnetometry

Morita, A., Nusantara, A. C., Mzyk, A., Perona Martinez, F. P., Hamoh, T., Damle, V. G., Laan, K. J. V. D., Sigaeva, A., Vedelaar, T., Chang, M., Chipaux, M. & Schirhagl, R., Feb-2023, In: *Nano Today*. 48, 13 p., 101704.

Relaxometry with Nitrogen Vacancy (NV) Centers in Diamond

Mzyk, A., Sigaeva, A. & Schirhagl, R., 20-Dec-2022, In: *Accounts of Chemical Research*. 55, 24, p. 3572-3580 9 p.

Intracellular Relaxometry, Challenges, and Future Directions

Sigaeva, A., Norouzi, N. & Schirhagl, R., 23-Nov-2022, In: *ACS central science*. 8, 11, p. 1484-1489 6 p.

Intracellular Quantum Sensing of Free-Radical Generation Induced by Acetaminophen (APAP) in the Cytosol, in Mitochondria and the Nucleus of Macrophages

Sharmin, R., Nusantara, A. C., Nie, L., Wu, K., Elias Llumbet, A., Woudstra, W., Mzyk, A. & Schirhagl, R., 10-Nov-2022, In: *ACS Sensors*. 7, 11, p. 3326-3334 9 p.

Diamond-Based Nanoscale Quantum Relaxometry for Sensing Free Radical Production in Cells

Sigaeva, A., Shirzad, H., Perona Martinez, F., Nusantara, A. C., Mougios, N., Chipaux, M. & Schirhagl, R., 3-Nov-2022, In: *Small*. 18, 44, 13 p., 2105750.

Relaxometry for detecting free radical generation during Bacteria's response to antibiotics

Norouzi, N., Nusantara, A. C., Ong, Y., Hamoh, T., Nie, L., Morita, A., Zhang, Y., Mzyk, A. & Schirhagl, R., 31-Oct-2022, In: *Carbon*. 199, p. 444-452 9 p.

Detecting free radicals post viral infections

Damle, V. G., Wu, K., Arouri, D. J. & Schirhagl, R., Oct-2022, In: *Free Radical Biology and Medicine*. 191, p. 8-23 16 p.

Single-Particle Tracking and Trajectory Analysis of Fluorescent Nanodiamonds in Cell-Free Environment and Live Cells

Sigaeva, A., Hochstetter, A., Bouyim, S., Chipaux, M., Stejfova, M., Cigler, P. & Schirhagl, R., 28-Sept-2022, In: *Small*. 18, 39, 17 p., 2201395.

Functionalized Fluorescent Nanodiamonds for Simultaneous Drug Delivery and Quantum Sensing in HeLa Cells

Tian, Y., Nusantara, A. C., Hamoh, T., Mzyk, A., Tian, X., Martinez, F. P., Li, R., Permentier, H. P. & Schirhagl, R., 31-Aug-2022, In: *ACS Applied Materials & Interfaces*. 14, 34, p. 39265–39273 9 p.

Insight into a Fenton-like Reaction Using Nanodiamond Based Relaxometry

Padamati, S. K., Vedelaar, T. A., Martinez, F. P., Nusantara, A. C. & Schirhagl, R., Jul-2022, In: *Nanomaterials*. 12, 14, 12 p., 2422.

Nanoscale MRI for Selective Labeling and Localized Free Radical Measurements in the Acrosomes of Single Sperm Cells

Reyes-San-Martin, C., Hamoh, T., Zhang, Y., Berendse, L., Klijn, C., Li, R., Llumbet, A. E., Sigaeva, A., Kawalko, J., Mzyk, A. & Schirhagl, R., 30-Jun-2022, In: *Acs Nano*. 16, 7, p. 10701–10710 10 p.

Applying NV center-based quantum sensing to study intracellular free radical response upon viral infections

Wu, K., Vedelaar, T. A., Damle, V. G., Morita, A., Mougnaud, J., Reyes San Martin, C., Zhang, Y., van der Pol, D. P. I., Ende-Metselaar, H., Rodenhuis-Zybert, I. & Schirhagl, R., 1-Jun-2022, In: *Redox Biology*. 52, 11 p., 102279.

Quantum Sensing of Free Radicals in Primary Human Dendritic Cells

Nie, L., Nusantara, A. C., Damle, V. G., Baranov, M. V., Chipaux, M., Reyes-San-Martin, C., Hamoh, T., Epperla, C. P., Guricova, M., Cigler, P., Van Den Bogaart, G. & Schirhagl, R., 23-Feb-2022, In: *Nano Letters*. 22, 4, p. 1818-1825 8 p.

Following Polymer Degradation with Nanodiamond Magnetometry

Li, R., Vedelaar, T., Mzyk, A., Morita, A., Padamati, S. K. & Schirhagl, R., 28-Jan-2022, In: *ACS Sensors*. 1, p. 123-130

Diamond Color Centers in Diamonds for Chemical and Biochemical Analysis and Visualization

Mzyk, A., Ong, Y., Ortiz Moreno, A. R., Padamati, S. K., Zhang, Y., Reyes-San-Martin, C. A. & Schirhagl, R., 11-Jan-2022, In: *Analytical Chemistry*. 94, 1, p. 225-249 25 p.

Diamond Relaxometry as a Tool to Investigate the Free Radical Dialogue between Macrophages and Bacteria

Wu, K., Nie, L., Nusantara, A. C., Woudstra, W., Vedelaar, T., Sigaeva, A. & Schirhagl, R., 2022, (Accepted/In press) In: *Acs Nano*. p. 1100-1111 12 p.

Nanotechnology from lab to industry - a look at current trends

Rambaran, T. & Schirhagl, R., 2022, In: *Nanoscale advances*. 4, p. 3664-3675 12 p.

Fluorescent Nanodiamonds for Detecting Free-Radical Generation in Real Time during Shear Stress in Human Umbilical Vein Endothelial Cells

Sharmin, R., Hamoh, T., Sigaeva, A., Mzyk, A., Damle, V. G., Morita, A., Vedelaar, T. & Schirhagl, R., 24-Dec-2021, In: *ACS Sensors*. 6, 12, p. 4349-4359 11 p.

Drug delivery and antimicrobial studies of chitosan-alginate based hydroxyapatite bioscaffolds formed by the Casein micelle assisted synthesis

Jariya, S. A. I., Padmanabhan, V. P., Kulandaivelu, R., Prakash, N., Mohammad, F., Al-Lohedan, H. A., Paiman, S., Schirhagl, R., Hossain, M. A. M. & Sagadevan, S., 1-Nov-2021, In: Materials Chemistry and Physics. 272, 11 p., 125019.

Male subfertility and oxidative stress

Evans, E. P. P., Scholten, J. T. M., Mzyk, A., Reyes-San-Martin, C., Llumbet, A. E., Hamoh, T., Arts, E. G. J. M., Schirhagl, R. & Cantineau, A. E. P., Oct-2021, In: Redox Biology. 46, 17 p., 102071.

Pharmacodynamic studies of fluorescent diamond carriers of doxorubicin in liver cancer cells and colorectal cancer organoids

Firestein, R., Marcinkiewicz, C., Nie, L., Chua, H. K., Quesada, I. V., Torelli, M., Sternberg, M., Gligorijevic, B., Shenderova, O., Schirhagl, R. & Feuerstein, G. Z., Sept-2021, In: Nanotechnology, Science and Applications. 14, p. 139-159 21 p.

Not all cells are created equal - endosomal escape in fluorescent nanodiamonds in different cells

Zhang, Y., Sharmin, R., Sigaeva, A., Klijn, C. W. M., Mzyk, A. & Schirhagl, R., 21-Aug-2021, In: Nanoscale. 13, p. 13294-13300 7 p.

pH Sensitive Dextran Coated Fluorescent Nanodiamonds as a Biomarker for HeLa Cells Endocytic Pathway and Increased Cellular Uptake

Nie, L., Zhang, Y., Li, L., van Rijn, P. & Schirhagl, R., 15-Jul-2021, In: Nanomaterials. 11, 7, p. 1-11 11 p., 1837.

Novel uric acid-based nano organocatalyst with phosphorous acid tags: Application for synthesis of new biologically-interest pyridines with indole moieties via a cooperative vinylogous anomeric based oxidation

Kalhor, S., Zarei, M., Sepehrmansourie, H., Zolfigol, M. A., Shi, H., Wang, J., Arjomandi, J., Hasani, M. & Schirhagl, R., May-2021, In: Molecular catalysis. 507, 16 p., 111549.

Quantum monitoring of cellular metabolic activities in single mitochondria

Nie, L., Nusantara, A. C., Damle, V. G., Sharmin, R., Evans, E. P. P., Hemelaar, S. R., van der Laan, K. J., Li, R., Martinez, F. P. P., Vedelaar, T., Chipaux, M. & Schirhagl, R., May-2021, In: Science Advances. 7, 21, 8 p., 0573.

Recent advances in natural polymer-based hydroxyapatite scaffolds: Properties and applications

Lett, J. A., Sagadevan, S., Fatimah, I., Hoque, M. E., Lokanathan, Y., Leonard, E., Alshahateet, S. F., Schirhagl, R. & Oh, W. C., 5-Apr-2021, In: European Polymer Journal. 148, 18 p., 110360.

Membrane-Based Scanning Force Microscopy

Hälg, D., Gisler, T., Tsaturyan, Y., Catalini, L., Grob, U., Krass, M. D., Héritier, M., Mattiat, H., Thamm, A. K., Schirhagl, R., Langman, E. C., Schliesser, A., Degen, C. L. & Eichler, A., Feb-2021, In: Physical Review Applied. 15, 2, 6 p., L021001.

Synthesis of biological based hennotannic acid-based salts over porous bismuth coordination polymer with phosphorous acid tags

Babaei, S., Zarei, M., Zolfigol, M. A., Khazalpour, S., Hasani, M., Rinner, U., Schirhagl, R., Norouzi, N. & Rostamnia, S., 22-Jan-2021, In: RSC Advances. 11, 4, p. 2141-2157 17 p.

Nanodiamond Relaxometry-Based Detection of Free-Radical Species When Produced in Chemical Reactions in Biologically Relevant Conditions

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