

Prof. Maria Contel – Curriculum Vitae

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EMPLOYMENT RECORD

- August 2020 **Director** of the Brooklyn College Cancer Center for Community Outreach, Research, and Education BCCC-CURE (<http://bccc.blog.brooklyn.edu/>)
- 2017 – 2020 **Chairperson.** Chemistry Department, Brooklyn College, CUNY (July 2017-June 2020)
- 2016 – present **Professor of Inorganic Chemistry. Tenured Position.** Chemistry Department, Brooklyn College, CUNY
- 2011 – 2016 **Associate Professor of Inorganic Chemistry. Tenured Position.** Chemistry Department, Brooklyn College, CUNY
- 2006 – 2011 **Assistant Professor (Inorganic Chemistry). Tenure Track Position.** Chemistry Department, Brooklyn College, CUNY
- 2002-2006 **Principal Investigator “Ramón y Cajal”.** Spanish Ministry of Science and Education. 5-year Senior Research Position. *Subject:* Compounds of groups 10 and 11 metals as recyclable catalysts for carbon-carbon and carbon-heteroatom bond formations. *Location:* Inorganic Chemistry Department, University of Zaragoza. Spain.
- 2000-2001 **Research Associate.** Funded by the Spanish Ministry of Science and Education and CSIC. *Subject:* Complexes with polyfunctional thiolates. *Location:* Materials Science Institute of Aragón, CSIC. Zaragoza. *Advisor:* Prof. Mariano Laguna
- 1999-2000 **Postdoctoral Fellow.** *Subject:* Synthesis of orthometalated gold compounds with NCN ligands. *Location:* Metal-Mediated Organic Synthesis Department. Debye Institute. University of Utrecht. The Netherlands. *Supervisor:* Prof. Gerard van Koten.
- 1997-1999 **Postdoctoral Fellow.** *Subject:* Synthesis of organometallic compounds with bridging C₆H₄PR₂ (R = Ph, Et) ligands. *Location:* Research School of Chemistry, Australian National University, Australia. *Supervisor:* Prof. Martin A. Bennett.

EDUCATION

- 2018 **Leadership Certificate in Higher Education.** HERS Institute (USA).
- 2001 **High School Pedagogy Certificate** (University of Zaragoza, Spain). Certification to teach Chemistry, Physics, and English in High Schools in Spain.
- 1996 **PhD in Chemistry.** Department of Chemistry, Public University of Navarra. Dissertation: ‘Mesityl and Trimethylsilylmethyl Gold Complexes as Precursors to Polynuclear Complexes’. PhD Advisors: Prof. Mariano Laguna (University of Zaragoza) and Julian Garrido (Public University of Navarra). Public University of Navarra Doctoral Fellowship.
- 1995 **Highest Level English Certificate** by the Spanish Official School of Languages (Spanish Ministry of Education)
- 1994 **Masters in Environmental Management.** University of Malaga (Spain)/Open University of London (UK).
- 1993 **Combined Bachelors and Master’s Degree in Chemical Sciences.** Department of Inorganic Chemistry, University of Zaragoza, Spain.

PROFESSIONAL MEMBERSHIPS

- 2015 Iota Sigma Pi National Honors Society for Women in Chemistry
- 2011- Member, Society of Biological Inorganic Chemistry
- 2006- Member, American Chemical Society
- 1993-2008 Member Real Sociedad Española de Química

PUBLICATIONS

- 77 **publications** in peer-reviewed internationally recognized journals and including book chapters (45 as corresponding or co-corresponding author). H-index: **36** as recently calculated by Google Scholar (May 2023).

List of most relevant publications in last 5 years

1. Encapsulation of Gold-Based Anticancer Agents in Protease-Degradable Peptide Nanofilaments Enhances Their Potency'. Y. Marciano, V. del Solar, D. Dave, J. Son, **M. Contel**, and R.V. Ulijn. *J. Am. Chem. Soc.* **2023**, *145*, 1, 234.
2. Self-Complementary Zwitterionic Peptides Direct Nanoparticle Assembly and Enable Enzymatic Selection of Endocytic Pathways'. R.H. Huang, N. Nayeem, Y. He, J. Morales, D. Graham, R. Klajn, **M. Contel**, S. O'Brien, and R.V. Ulijn. *Adv. Mater.* **2022**, *34*, 2104962.
3. Intracellular Localization Studies of the Luminescent Analogue of an Anticancer Ruthenium Iminophosphorane with High Efficacy in a Triple-Negative Breast Cancer Mouse Model'. K. Miachin, V. del Solar, E. El Khoury, N. Nayeem, A. Khrystenko, P. Appelt, M.C. Neary, D. Buccella, and **M. Contel**. *Inorg. Chem.* **2021**, *60*, 19152. 73.
4. 'Auranofin-Based Analogues Are Effective Against Clear Cell Renal Carcinoma *In Vivo* and Display No Significant Systemic Toxicity'. B. Elie, K. Hubbard, B. Layek, W. Seok Yang, S. Prabha, J. Ramos, and **M. Contel**. *ACS Pharmacol. Transl. Sci.* **2020**, *4*, 644.
5. 'Preclinical evaluation of an unconventional ruthenium-gold-based chemotherapeutic: RANCE-1, in clear cell renal cell carcinoma'. B.T. Elie, K. Hubbard, Y. Pechhenyy, B. Layek, S. Prabha, and **M. Contel**. *Cancer Medicine*, **2019**, 4304-4314 (open access).
6. 'Customizing Morphology, Size, and Response Kinetics of Matrix Metalloproteinase-Responsive *Nanostructures* by Systematic Peptide Design'. J. Son, D. Kalafatovic, M. Kumar, B. Yoo, M.A. Cornejo, **M. Contel**, and R.V. Ulijn. *ACS Nano*. **2019**, *13*, 1555.
7. 'Trastuzumab gold-conjugates: synthetic approach and in vitro evaluation of anticancer activities in breast cancer cell lines'. N. Curado, G. Dewaele-Le Roi, S. Poty, J.S. Lewis, and **M. Contel**. *Chem. Commun.* **2019**, *55*, 1394.

PATENTS

1. 'Titanocene Gold Derivatives Comprising Thiolato Ligands'. US Patent 9,315,531 (04/19/2016).
2. 'Arene Ruthenium (II) Derivatives Containing Iminophosphorane Ligands and their Use in Cancer Therapy'. US Patent 9,555,049 B2 (01/31/2017).
3. 'Antibody Drug Conjugates Based on Gold Compounds'. US Patent 11,141,490(10/12/2021)

Preliminary Patent filed:

'Biodegradable peptides as nanocarriers for gold-based anticancer agents'. US Preliminary Patent (63/489,659). Filed on 03/10/2023.

GRANTS AND FUND RAISING

Since joining Brooklyn College in 2006, I have secured research grants as sole Principal Investigator from USA Federal Agencies, Foundations and the City University of New York, totaling over \$4.2M (including the organization of an International Conference). Along with the President of Brooklyn College, I have raised funds from donors for the creation and support of the Brooklyn College Cancer Center (\$550,000). I have recently been awarded two institutional grants to support the Brooklyn College Cancer Center, one from the American Cancer Society (\$2.6M) and another (as co-PI) one from the Gray Foundation (\$100K).

Major funding in the past 5 years:

Individual

Agency: USA National Institutes of Health/National Institute for General Medical Sciences (NIH/NIGMS)

Grant number: 1R16GM149396-01 (pending, waiting for NOA in the next two weeks)

Period: 06/01/2023-05/31/2027

Role: Principal Investigator

Title: **Platinum-Gold Compounds as Potential Chemo- and Targeted Agents for Ovarian Cancer**

Amount: \$628,000

Agency: USA National Institutes of Health/National Institute for General Medical Sciences (NIH/NIGMS)
Grant number: 2SC1GM127278
Period: 06/01/2018-05/31/2023
Role: Principal Investigator
Title: **Biodegradable nanocarriers and antibodies as targeting delivery vehicles for cancer metallodrugs**
Amount: \$1,570,000

Agency: USA National Institutes of Health/National Cancer Institute (NIH/NCI)
Grant number: 1SC1CA182844
Period: 07/01/2013-06/30/2018
Role: Principal Investigator
Title: **Titanium-gold-based chemotherapeutics for prostate and kidney cancer**
Amount: \$1,413,000

Institutional

Agency: American Cancer Society (Diversity in Cancer Research Institutional Development Grant Program)
Grant number: DICRIDG-22-1012253-01
Period: 01/01/2023-12/31/2026
Role: Principal Investigator
Title: **Supporting Cancer Research at Brooklyn College Cancer Center, a Highly Diverse Institution**
Amount: \$2,613,000

Agency: Gray Foundation
Period: 01/01/2023-12/31/2023
Role: co-Principal Investigator (co-PI Dr. Jennifer Basil)
Title: **Brooklyn College Cancer Center Operations Support Grant**
Amount: \$100,000

HONORS and AWARDS

2022	Elected Vice-Chair 2024 Metals in Medicine Gordon Conference (2026 Chair).
2022	Outstanding Faculty Service Award (Brooklyn College).
2022-2023	Schwartzman, George and Beatrice Professor in Chemistry (Brooklyn College).
2021-2022	Jacques Edward Levy Professor in Chemistry (Brooklyn College).
2018	Don Quijote Leadership Award. Puerto Rican and Latino Studies Department at Brooklyn College & New York Puerto Rican Alliance.
2018	HERS-Leadership Training Institutes for Women in Higher Education Summer 2018 CBL STEM Fellowship (to attend the two-week institute in July of 2018, Bryn Mawr College, PA).
2018	Discussion Leader GRC "Metals in Medicine", Andover US.
2018	Schwartzman, George and Beatrice Professor in Chemistry (Brooklyn College).
2015-2017	Tow Professor (at Brooklyn College). Highest recognition in research from Brooklyn College.
2014-2022	Associate (2014) and Full Member (2017) of the National Cancer Institute Designated Center University of Hawaii Cancer Center (Cancer Biology Program, Natural Products and Experimental Therapeutics). Competitive Membership.
2013	Tow Travel Faculty Fellowship (Brooklyn College). To fund a sabbatical stay during Fall 2013-Spring 2014 academic year at the University of Hawaii-Cancer Center.
2007	USA Project Kaleidoscope Faculty Fellow for the 21st Century (PKAL F21) Class of 2007.
2006	Prominent Research Career Report (I3 Program): Positive Evaluation. ANEP, Spanish National Agency of Evaluation and Prospective.
2002-2006	Ramon y Cajal Senior Research Position. Most prestigious Spanish Research Fellowship awarded to Young Investigators.

Visiting Professorships – University of Hawaii-Cancer Center (Academic Year 2013-2014). Collaborator: Prof. Joe W. Ramos.

Collaborative Research Stays (as senior researcher): Brookhaven National Laboratory, USA (3 months in 2005). Collaborators: Richard H. Fish and Devinder Mahajan; Eötvös University, Budapest, Hungary (1 month in 2005 and 1 month in 2003). Collaborator: István T. Horváth.

Collaborative Research Stays (as postdoctoral fellow or PhD student): Chemistry Department, Auckland University (New Zealand) (1 month in 1998). Collaborators: Profs Warren Roper and James Wright; Inorganic Chemistry Department. University Am Hübland, Würzburg, Germany (3 months in 1995). Supervisor: Prof. Lutz H. Gade.

MANAGEMENT AND ORGANIZATIONAL EXPERIENCE

- August 2020- *Co-founder* of the Brooklyn College Cancer Center for Community Outreach, Research and, Education BCCC-CURE (established in October 2020). Developed original proposal for the creation of the center and content for the web site, recruited associated directors and other personnel, appointed members of the Advisory Board and raised funds for the operations of the first three years (2020-2022), developed/developing scientific seminars and symposia as well as community outreach events, submitted/submitted grants since 2020. Established partnerships with Cancer Centers and Academic and Research Centers in Brooklyn and NYC area. I am currently the *Director and Research Area Leader*. (<http://bccc.blog.brooklyn.edu/>)
- 2017—2020 *Chairperson* of the Chemistry Department, Brooklyn College CUNY (July 2017-June 2020). Supervising a department composed by full-time personnel: 17 faculty members, 6 college laboratory technicians, and 2 college official assistants (secretaries), and part-time personnel: 40 faculty members, 2 college laboratory technicians (CLT), and 1 college official assistant. In addition, the department has an average of 60 researchers in laboratories (including doctoral students, postdocs, research assistants, master's students and undergraduate students) per semester. Our department has a typical 4700 headcount enrollment/year. In charge of all personnel matters (hiring, promotion and tenure), budgets, facilities, and representing the department at school, college and university level. Developing first diversity plans for the Department, Leading the 10-year self -study of the department in 2018, successful transition to remote learning in March of 2020, and safe re-opening of laboratory plans in July of 2020.
- 2022 *Organizer and presenter* for the Power Hour in the 2020 Metals in Medicine Gordon Conference (June-July of 2022 in Andover, NH). <https://www.grc.org/metals-in-medicine-conference/2020/>.
- 2021-present *Elected Director at Large. Chair* of the Minority Affairs Committee. American Chemical Society, New York Local Section.
- 2020- *Member* of the Oversight Committee for the "Brooklyn College Master Plan Project on the Renovation of Ingersoll and Roosevelt Buildings". Other committee members include architects, members of CUNY central, Brooklyn College Provost and Vice-president of Finance, and two School Deans.
- 2016 *Organizer and Chair* of an International Symposium in Brooklyn College to honor the Memory of Prof. Roberto Sanchez-Delgado. 120 international attendees. (<http://www.brooklyn.cuny.edu/web/academics/schools/naturalsciences/undergraduate/chemistry/delgado.php>)
- 2015 *Co-organizer and Chair* of the 1st International Symposium on Clinical and Experimental Metallodrugs in Medicine: Cancer Chemotherapy, Honolulu, Hawaii <http://cemm.brooklyn.cuny.edu>
- 2006-present Participated in a variety of committees and task forces at College/University level (such as Policy Council, Faculty Council, Integrity, Research, Workload and Equity, Promotion and Tenure for the College and the Natural and Behavioral Sciences School, graduate Curriculum, Recruitment of Doctoral Students, Honorary Degrees, Student's Records).
- 2002-2006 *Coordinator* of the "Ramón y Cajal Researchers" Group in Aragón (Spain). *President* (Organizing Committee) of the First National Meeting of "Ramón y Cajal Researchers", Zaragoza, 2004.

LECTURES AT CONFERENCES (selected between 2015-2023)

Upcoming

Keynote Lecture. August 2023. 24th European Conference on Organometallic Chemistry (EuCOMC 2021). Alcalá de Henares, Spain.

Past

- 1) **Keynote Lecture.** April 2023. Latin American Meeting on Biological Inorganic Chemistry, VIII LABIC (Viña del Mar, Chile).
- 2) **Invited Lecture.** 24th October 2022. Virtual Symposium "Metal Complexes for Biomedical Applications (MCBA2022)" (Wiley Chemistry).
- 3) **Invited Lecture.** June-July 2022. Gordon Research Conference 'Metals in Medicine'. Andover, New Hampshire, USA.
- 4) **Invited Lecture.** March 2022. American Chemical Society Spring Meeting (San Diego, California, USA).
- 5) **Keynote Lecture.** October 2021. International Symposium on Bioorganometallic Chemistry (ISBOMC) virtual event.
- 6) **Invited Lecture.** July 2021. Virtual International Biological Inorganic Chemistry meeting (eBIC)
- 7) **Keynote Lecture.** April 2021. 7th Latin American meeting on Biological Inorganic Chemistry (LABIC). Virtual event.
- 8) **Invited Lecture.** March 2021. American Chemical Society Spring Meeting (Seminar to honour Prof. Kathy Franz (virtual event).
- 9) **Invited Lecture.** September-October 2019. 54 Mexican Chemistry Conference (Puebla, Mexico).
- 10) **Keynote Lecture.** August-September 2019. 7th Latin American Symposium on Coordination and Organometallic Chemistry, 5^o SILQCOM (Cartagena de Indias, Colombia).
- 11) **Invited Lecture.** August 2019. American Chemical Society Fall Meeting (Inorganic Lectureship Seminar Symposium (San Diego, California, USA).

- 12) **Keynote Lecture.** June 2019. American Chemical Society North Eastern Regional Meeting. (Saratoga Springs, NY).
- 13) **Invited Lecture.** (March 2019) American Chemical Society Spring Meeting (Seminar to honor Prof. Debbie Crans, Orlando, Florida, USA).
- 14) **Invited Lecture.** December 2018. 9th Asian Biological Inorganic Chemistry Conference, ASBIC, (Singapore).
- 15) **Invited Lecture.** August 2018. 43 International Conference on Coordination Chemistry ICCS, (Sendai, Japan).
- 16) **Keynote Lecture.** August 2017. 18th International Conference on Biological Inorganic Chemistry ICBIC, (Florianopolis, Brazil).
- 17) **Invited Lecture.** October 2016. V Latin American Meeting on Biological Inorganic Chemistry LABIC (Querétaro, Mexico).
- 18) **Invited Lecture.** September 2016. International Conference on Chemical Biology Frontiers. Central China Normal University (Wuhan, China)
- 19) **Invited Lecture.** December 2015. Pacificchem 2015 (Honolulu, Hawaii, USA)
- 20) **Invited Lecture.** October 2015. 5th Latin American Symposium on Coordination and Organometallic Chemistry, 5^o SILQCO' (Rio de Janeiro, Brazil)
- 21) **Invited Lecture.** September 2015. ACS NY Section "2015 Frontiers of Inorganic and Organometallic Chemistry Lecture" (Columbia University, NY)

Seminars (selected past 5 years)

- Albert Einstein School of Medicine
- Temple University (USA)
- IMDEA NanoCiencia (Madrid, Spain)
- University of Calgary (Calgary, Canada)
- Donostia International Physics Center (San Sebastian, Basque Country, Spain)
- University of Puerto Rico (Puerto Rico, USA)
- University of Zaragoza-CSIC (Zaragoza, Spain)
- University of Warsaw (Warsaw, Poland)
- Centro de Investigación y de Estudios Avanzados del I.P.N. Campus Zacatenco, Cinvestav (Mexico DF, Mexico)
- Instituto de Tecnología Química e Biológica, Universidade Nova de Lisboa (Portugal)
- University of Hawaii-Cancer Center, Kakaako (Honolulu, USA)
- Chemistry Department, University of Hawaii at Manoa (Honolulu, USA)
- City University of Hong-Kong (Hong-Kong)
- University of Hong-Kong (Hong-Kong)

MEMBERSHIP OF SCIENTIFIC ADVISORY BOARDS/JOURNAL AND GRANT REVIEWS

Since 2019	Member of the Editorial Advisory Board of <i>the Journal of Biological Inorganic Chemistry</i> .
2017-2021	Member of the Editorial Board of <i>Inorganics</i> (MDPI).
2017-2018	Ion Biotechnology Inc. (USA). Consulting/scientific advisement.
Since 2008	Referee for grants from USA agencies like NSF, NIH, ACS-PRF (including panels) and of grants from other countries (such as Hong Kong Council Review, Czech Republic Science Ministry, National Research Foundation (NRF) of South Africa or the Israel Science Foundation, and several Latin-American agencies) in the areas of medicinal inorganic chemistry, organometallic chemistry and homogeneous catalysis.
Since 2003	Referee for the following journals ACS (<i>JACS</i> , <i>Inorg Chem</i> , <i>Organometallics</i> , <i>J Med Chem</i> , <i>ACS Bioconjugate.</i> , <i>ACS Mol Pharm</i> , <i>ACS Nano</i> , <i>ACS Med Lett</i> , <i>ACS Catalysis</i>), Wiley (<i>Angew Chem Int Ed</i> , <i>Chem Eur J</i> ; <i>Eur J Inorg Chem</i> ; <i>Eur J Med Chem</i> , <i>ChemMedChem</i> , <i>ChemBioChem</i>), RSC (<i>ChemCommun</i> , <i>Dalton Trans</i> , <i>Metallomics</i>), Springer (<i>J Biol Inorg Chem</i>), Science Direct (<i>J Organometallic Chem</i>) Elsevier (<i>J Inorg Biochem</i> , <i>Polyhedron</i>), Nature (<i>Oncogene</i>), PLOS one, MDPI (<i>Inorganics</i> , <i>Molecules</i>) and others.
Since 2006	Member of CUNY and international PhD evaluation committees in Chemistry and Biology (13 students)

MENTORING

2006-present	At Brooklyn College: Supervised 7 PhDs (4 already graduated), supervised 7 post-docs, 8 visiting postdocs, PhD and masters' students, 3 Master students, 46 Bachelors, 3 high school students. 80% of these researchers are female or students underrepresented in the physical sciences.
2014-present	Formal Mentoring of two Assistant Professors (underrepresented in the Sciences) and two Visiting Assistant Professors.
2002-2006	At the University of Zaragoza: supervised 5 student's honor's thesis combined Bachelor/Masters projects.

TEACHING AND RELATED ACTIVITIES

Teaching qualifications

- 2011 & 2016 Tenure. Brooklyn College, The City University of New York. Competitive promotions to Associate professor in 2011, and to Full Professor (higher teaching rank in USA universities) in 2016.
- 2005 Teaching Competence Certification (certification to be a University Assistant/Associate Professor in the area of Inorganic Chemistry). ANECA, Spanish National Agency of Evaluation and Academic Certifications.
- 2001 Teaching Competence Certification (certification to be a High-School Teacher for Science Subjects and English). University of Zaragoza, Spain.

Courses Taught/Curriculum Development

Since 1994 and more specially since 2006 when I became a University Assistant Professor, I have been involved in teaching courses (laboratory, problems and lectures) in the main areas of General Chemistry, Inorganic Chemistry and Organic Chemistry as well as in curriculum development at undergraduate and graduate levels (see summary of teaching for specifics). I am a faculty member of three PhD Programs at the Graduate Center (the City University of New York) since 2006 (Chemistry), 2014 (Biology) and 2018 (Biochemistry),

BOOKS/CHAPTER of BOOKS

- 1) Editor of the Book. 'Unconventional Anticancer Metallodrugs and Strategies to Improve the Pharmacological Profile'. Special Issue *Inorganics* 2019.
- 2) Chapter of Book. 'Heterometallic Complexes as Anticancer Agents' in 'Metal-based Anticancer Agents' (Series Metallobiology) A, Casini, S. Meier-Menches, A. Vessieres Eds. *Royal Society of Chemistry*. 2019.
- 3) Chapter of Book. 'Fluorous Hydrosilylation' Invited Chapter to the Special Volume on Fluorous Chemistry, Topics in Current in Chemistry, I.T. Horváth Ed. Springer 2012.
- 4) Chapter of Book. 'Synthesis of Fluorous Nitrogen Ligands and Their Metal Complex as Precatalysts for Application in Alkane, Alkene, and Alcohol Oxidation, and Atom Transfer Radical Reactions'. Handbook of Fluorous Chemistry, J. Gladysz, D. Curran, I. Horvath, Wiley-VHC 2004.
- 5) Chapter of Book. ' $Mn^{2+}/Co^{2+}/Cu^{2+}/Cu^+$ Complexes of Fluoroponytailed *R*-Tris-*N*-1,4,7-triazacyclononane and *R*-Carboxylate, $C_8F_{17}(CH_2)_2COOH$. Precatalysts for FBC Alkane, Alkene, and Alcohol Oxidation Chemistry'. Handbook of Fluorous Chemistry, J. Gladysz, D. Curran, I. Horvath, Wiley-VHC 2004.