Conference Detailed Schedule

All sessions will be held in the Marquette Hotel. Presentations will be in the Galaxy Ballroom with posters in the Stars Ballroom. Both rooms are on the 51st Floor.

DAY 1: MONDAY, JUNE 2, 2025

1600-2030 **REGISTRATION**

1700-1900 *Galaxy Ballroom*

Welcome, Opening Remarks

Thomas Marsh (St. Thomas University), **Bruce Armitage** (Carnegie Mellon University), **Danzhou Yang** (Purdue University)

Keynote Speakers

Keynote Speakers

Oxidative Stress and Gene Expression Meet at G-Quadruplexes
Cynthia Burrows, Thatcher Presidential Chair and Distinguished Professor
Department of Chemistry, University of Utah, USA

The G4 Folding Problem
Brad Chaires, Brown Chair in Cancer Biophysics; Senior Scientist, Brown Cancer Centre, USA
Professor, Department of Medicine & Department of Biochemistry & Molecular Biology, University of Louisville, USA

A Half-Century Exciting Journey from Anthramycin Targeting Duplex DNA to Trabectedin, the First FDA-Approved Drug That Targets G-Quadruplexes.
Laurence Hurley, Professor Emeritus
College of Pharmacy and Arizona Cancer Center, University of Arizona, USA

1900-2100 *Stars Ballroom*

Opening Reception

Join us to meet up with old colleagues and meet new ones at the opening reception. This informal networking event will feature light appetizers and a cash bar. A complimentary drink ticket is provided and can be found in the back of your name badge.

DAY 2: TUESDAY, JUNE 3, 2025

0800-1745 **REGISTRATION**

0830-1010 **BIOLOGY & DISEASE 1**

Moderator: Danzhou Yang, *Purdue University*

Individual G-Quadruplex Targeting with Chemically Functionalised CRISPR-Cas9 Uncovers Transcriptional and Ligand-Specific Responses

Inv.1 **Marco Di Antonio**, *Imperial College of London*

Mechanism for unfolding of G-Quadruplex DNA by Pif1 helicase

Inv.22 **Kevin Raney**, *University of Arkansas*

G-Quadruplexes in Mitochondria

Inv.3 **Brett Kaufman**, *University of Pittsburgh*

Targeting G-Quadruplex to Eliminate Dormant Breast Cancer

Inv.34 Mike Wendt, *University of Iowa*

BIO.1.3 Not All G4 Binders Are the Same: New Insights into G4-Mediated Immune Gene Activation Through Proteomic Analysis of Micronuclei

Giulia Miglietta[1], Monica Procacci[1], Marco Russo[1], M.P. Ximénez De Embún Cadarso[2], Javier Munoz[2], Giovanni Capranico[1]

[1]University of Bologna, [2]Spanish National Cancer Research Centre

Presenting Author: **Giulia Miglietta**

1010-1040 **Refreshment Break**

1040-1220 **BIOLOGY & DISEASE 2**

Moderator: Katrin Paeschke, *University Hospital Bonn*

G-Quadruplex DNA in Trained Immunity and Aging

Inv.4 **Robert Hansel-Hertsch**, *University of Cologne*

G-Quadruplexes Promote Molecular Motility in MAZ Phase-Separated Condensates to Activate CCND1 Expression

Inv.5 **Guangchao Sui**, *Northeast Forest University*

Non-canonical DNA in Human and Other Ape Telomere-to-Telomere Genomes: Computational Predictions, Experimental Calidations, and Evolution

Inv.6 **Kateryna D. Makova**, *Penn State University*

BIO.2.1 Non-Canonical DNA In Human and Other Ape Telomere-To-Telomere Genomes

Linnéa Smeds[1], Kaivan Kamali[1], Iva Kejnovská[2], Eduard Kejnovský[2], Francesca Chiaromonte[1], Kateryna D. Makova[1]

[1]Penn State University, [2]Czech Academy of Sciences

Presenting Author: **Linnéa Smeds**

BIO.2.2 RNA Capping and Quadruplexes

Lydia Hepburn[1]

[1]Cancer Research UK

Presenting Author: **Lydia Hepburn**

BIO.2.3 G-Quadruplexes in Viral Genomes: A Comparative Analysis

Vaclav Brázda[1], Jean-Louis Mergny[2]

[1]Czech Academy of Sciences, [2]Laboratoire d'Optique et Biosciences

Presenting Author: **Vaclav Brázda**

1220-1345 **Lunch on own**

1345-1525 **BIOLOGY & DISEASE 3**

Moderator: Marco DiAntonio, ***Imperial College of London***

Structural and Functional Diversity of Tetramolecular RNA G-Quadruplexes Derived From Endogenous tRNA Variants

Inv.7 **Pavel Ivanov,** *Harvard University*

"G4 Prionoid" RNA G-Quadruplexes in Neuropathology

Inv.8 **Norifumi Shioda,** *Kumamoto University*

G4 DNA and Zn Finger Transcription Factors

Inv.9 **Nayun Kim,** *University of Texas at Austin*

BIO.3.1 RAD51 Accommodates G4 Within its Filamentous Structure and Promotes Gap-Filling by Template Switch

Lumir Krejci[1], Michaela Pospíšilová[1]

[1]*Masaryk University*

Presenting Author: **Michaela Pospíšilová**

BIO.3.2 Quadratlas: Decoding the Interplay of RG4s and RNA-Binding Proteins

Erik Dassi[1]

[1]*University of Trento*

Presenting Author: **Erik Dassi**

BIO.3.3 G-Quadruplex Structures in 16S rRNA and Thermal Adaptation in Prokaryotes

Qisheng Song[1], Bo Lyu[1], Deborah Anderson[1], Kangkang Niu[2], Qili Feng[2]

[1]*University of Missouri,* [2]*South China Normal University*

Presenting Author: **Qisheng Song**

1525-1555 **Refreshment Break**

1555-1735 **YOUNG SCHOLAR FORUM**

Moderator: Thomas Marsh, ***St. Thomas University***

YS.1 Premature Progerin-Driven Aging Promotes G-Quadruplex DNA and Interlinked Genome Instability

Anna Koch[1], Priscilla Piccirillo[1], Joana Frobel[1], Julia Popow[1], Linda Hannak[1], Sara Desideri[1], Olivia Van Ray[1], Pascal Hunold[1], Michaela Höhne[1], Magda Hamczyk[2], Miguel Araujo-Voces[2], Carlos López-Otín[2], Robert Hänsel-Hertsch[1]

[1]*University Hospital Cologne,*[2]*Instituto Universitario de Oncología*

Presenting Author: **Anna Koch**

YS.2 BCL2 Promoter Secondary Structures Facilitate AID Mutagenic Activity

Mason Mccrury[1], Rylie Mangold[1], Todd Spears[1], Samantha Kendrick[1]

[1]*University of Arkansas*

Presenting Author: **Mason Mccrury**

YS.3 Guanine Quadruplex Structures Mediate Genome-Wide Regulation of Small Rnas Upon Ionizing Radiation Stress in Hela Cells

Shruti Mishra[1], Himani Tewari[1], Swathi Kota[1]

[1]*Bhabha Atomic Research Centre*

Presenting Author: **Shruti Mishra**

YS.4 **Understanding Sequence-Level Drivers of G-Quadruplex Stability, Ligand-Modulated Stabilization, and Protein Recognition**
Justin Martyr[1], Bryan Guzman[1], Yue Hu[1], Alli Jimenez[1], Maria Aleman[1], Daniel Dominguez[1]
[1]University of North Carolina Chapel Hill
Presenting Author: **Justin Martyr**

YS.5 **Small Molecule-Based Regulation of Gene Expression in Human Astrocytes Switching On and Off the G-Quadruplex Control Systems**
Vijay Kumar M J Rao[1], Jérémie Mitteaux[2], Zi Wang[3], Ellery Wheeler[4], Nitin Tandon[4], Sung Yun Jung[5], Robert H E Hudson[3], David Monchaud[2], Andrey Tsvetkov [4]
[1]University of Texas Health Science Center at Houston,[2]Université de Bourgogne, [3]The University of Western Ontario,[4]The University of Texas,[5]Baylor College of Medicine
Presenting Author: **Vijay Kumar M J Rao**

YS.6 **Structure and Dynamics of the PDGFR-B Oncogene Promoter G-Quadruplex: Insights into Regulation and Targeting**
Yichen Han[1], Jonathan Dickerhoff[1], Danzhou Yang[1]
[1]Purdue University
Presenting Author: **Yichen Han**

YS.7 **Exploring B-MYB G-Quadruplex as a Therapeutic Target in Cancer: Small Molecule Interactions and Their Biological Effects**
André Miranda[1], Anne Cucchiarini[2], Cyril Esnault[3], Jean-Christophe Andrau[3], Paula Oliveira[4], Jean-Louis Mergny[2], Carla Cruz[1]
[1]University of Beira Interior,[2]Laboratoire d'Optique et Biosciences, [3]University of Montpellier,[4]Centre for Research and Technology of Agro-Environmental and Biological Sciences
Presenting Author: **André Miranda**

YS.8 **Guanine by Guanine: Decoding the BCL2 RNA G-Quadruplex Conformation Landscape**
Carla Ferreira Rodrigues[1]
[1]University of Zurich
Presenting Author: **Carla Ferreira Rodrigues**

YS.9 **Tetraplexed Nucleic Acids Structures as Templating Platform for Proximity-Enhanced Photochemical Reaction: Applications in DNA Targeting and Aptamer Fabrication**
Enrico Cadoni[1], Annemieke Madder[1], Jack Barr[1], Lessandro De Paepe[1]
[1]Ghent University
Presenting Author: **Enrico Cadoni**

YS.10 **Unveiling the Kinetic Tango: Exploring G-Quadruplex Ligand Binding Dynamics and Transfer Mechanisms**
Hariz Iskandar Mohd Nizal[1], Anthony Mittermaier[1]
[1]McGill University
Presenting Author: **Hariz Iskandar Mohd Nizal**

1735-1900 **Dinner on own**

1900-2100 **POSTER SESSION 1**

Join us for Poster Session 1 to meet the scientists as they present their research. This event will feature light appetizers and a cash bar. A complimentary drink ticket is provided and can be found in the back of your name badge.

DAY 3: WEDNESDAY, JUNE 4, 2025

0800-1230 **REGISTRATION**

0830-1010 **STRUCTURE & DYNAMICS 1**

Moderator: Janez Plavec, *National Institute of Chemistry*

Static and Time-resolved NMR Studies to Study G4 Folding
Inv.16 **Harald Schwalbe**, *University of Frankfurt*

G-Quadruplex Structures Formed by C9orf72 DNA and RNA
Inv.17 **Guang Zhu**, *Hong Kong University of Science and Technology*

Physicochemical Properties of Tetraplexes for the Dynamic Regulation in Biological Functions
Inv.18 **Shuntaro Takahashi**, *Konan University*

STR.1.1 Supramolecular Assembly of D(G4C2) and D(G4C2)4 Repeats Associated With ALS and FTD
Melani Potrc[1], Elena Cokor[1], Irena Drevensek-Olenik[2], Lea Spindler[2]
[1]University of Maribor, [2]Josef Stefan Institute
Presenting Author: **Lea Spindler**

STR.1.2 G-Quadruplexes in Archaea
Lionel Guittat[1], Anne Cucchiarini[2], Zackie Aktary[2], Kate Sorg[2], Guglielmo Vesco[3], Dorian Noury[2], Pierre Mahou[2], Daniela Verga[4], Vaclav Brázda[5], Nicolas Olivier[2], Marie Bouvier[6], Marta Kwapisz[6], Béatrice Clouet-D'orval[6], Thorsten Allers[7], Roxane Lestini[2], Jean-Louis Mergny[2]
[1]Ecole Polytechnique, [2]Laboratoire d'Optique et Biosciences, [3]University of Insubria, [4]PSL Research University, [5]Czech Academy of Sciences, [6]Center for Integrative Biology, [7]University of Nottingham
Presenting Author: **Lionel Guittat**

STR.1.3 G-Quadruplex-Driven Molecular Disassembly and Type I-To-Type II Photophysical Conversion of a Heavy-Atom-Free Photosensitizer for Site-Specific Oxidative Damage
Marco Deiana[1]
[1]Wroclaw University of Science and Technology
Presenting Author: **Marco Deiana**

1010-1040 **Refreshment Break**

1040-1220 **STRUCTURE & DYNAMICS 2**

Moderator: Harald Schwalbe, *University of Frankfurt*

Oncogene DNA G-Quadruplexes: Structures, Drug Targeting, and Protein Interactions
Inv.19 **Danzhou Yang**, *Purdue University*

Rules for the pUG fold: An Unusual Quadruplex That Directs the Amplification of RNAi
Inv.20 **Sam Butcher**, *University of Wisconsin-Madison*

A Novel Strategy for Developing Antibiotics Targeting the G-Quadruplex
Inv.21 **Kyeong Kyu Kim**, *Sungkyunkwan University*

STR.2.1 **From Meme to Model: How Cryo-EM Helped Resolve a Misconception in the G-Quadruplex Field**

Robert Monsen[1], Eugene Chua[2], Jesse Hopkins[3], Jonathan Chaires[1], John Trent[1]
[1]University of Louisville, [2]National Center for Cryo-EM Access and Training, [3]The Biophysics Collaborative Access Team
Presenting Author: **Robert Monsen**

STR.2.2 **Post Transcriptional Regulation of Kras Gene Via 5UTRr RNA G-Quadruplexes and Long Noncoding RNA**

Zahraa Othman[1], Ylenia Cortelezzis[2], Francesca Agostini[2], Gilmar Salgado[1], Luigi Xodo[2], Eros Di Giorgio[2]
[1]Bordeaux University, [2]University of Udine
Presenting Author: **Zahraa Othman**

STR.2.3 **Gene Transcription Regulation by G-Quadruplex**

Lijun Xiang[1], Kangkang Niu[1], Qili Feng[1]
[1]South China Normal University
Presenting Author: **Qili Feng**

1220-1900 **Lunch & afternoon on own**

1900-2100 **Conference Dinner or on own**

Galaxy Ballroom

Tickets for the conference dinner must be pre-purchased – please check with the registration desk for seating availability. If you have pre-purchased a dinner ticket, it will be in the back of your name badge along with a complimentary drink ticket.

DAY 4: THURSDAY, JUNE 5, 2025

0800-1745 **REGISTRATION**

0830-1010 **NANOTECHNOLOGY & BIOTECHNOLOGY 1**

Moderator: Bruce Armitage, *Carnegie Mellon University*

Understanding the Role of Tandem G-Quadruplex Structures in the Liquid-liquid Phase Separation (LLPS)
Inv.13 **Hanbin Mao**, *Kent State University*

NANO.2 Using Parallel-Type G4 as a Scaffold for Delivery of Immunostimulatory CPG Oligodeoxynucleotides to Immune Cells
Tomohiko Yamazaki[1]
[1]*National Institute for Materials Science*
Presenting Author: **Tomohiko Yamazaki**

NANO.3 I-Motif Kinetics as a Unique Opportunity in Sensor Design: A Case of Molecular Calorimeters
Irina Nesterova[1]
[1]*Northern Illinois University*
Presenting Author: **Irina Nesterova**

NANO.1 Single Molecule Studies on Interactions of Telomeric Overhangs and Telomere-Specific Proteins
Hamza Balci[1], Ahmet Yildiz[2], Sajad Shiekh[1], Amanda Jack[2]
[1]*Kent State University,* [2]*University of California, Berkeley*
Presenting Author: **Hamza Balci**

Persistence Lengths of Extended Tet1.5 and G10 G-Wire DNA
Inv.14 **James Vesenka**, *University of New England*

Use of G4 for the Construction of Supramolecular Scaffold Materials
Inv.15 **Thomas Marsh**, *St. Thomas University*

1010-1040 **Refreshment Break**

1040-1220 **STRUCTURE & DYNAMICS 3**

Moderator: Danzhou Yang, *Purdue University*

I-Motifs from Human Telomeric Sequences as a Molecular Target:

Dynamic NMR Structures of Quadruplex DNA Tuned by C-Methylation
Inv.24 **Janez Plavec**, *National Institute of Chemistry*

Combining Crystallographic and Single Molecule FRET to Understand Topology and Stability
Inv.23 **Gary Parkinson**, *University College of London*

Deep Learning of G-Quadruplexes
Inv.35 **Shozeb Haider**, *University College London*

STR.3.1 First Atomic Resolution Structure of an Intramolecular Higher-Order Five Tetrad G-Quadruplex
Thomas Sabo[1], John Trent[1], Jonathan Chaires[1], Robert Monsen[1]
[1]*University of Louisville*
Presenting Author: **Thomas Sabo**

STR.3.2 **Structural Basis for Nucleolin Recognition of MYC Promoter G-Quadruplex**
Luying Chen[1], Jonathan Dickerhoff[1], Ke-Wei Zheng[2], Guanhui Wu[1], Saburo Sakai[1], Danzhou Yang[1]
[1]Purdue University, [2]Hunan University
Presenting Author: **Luying Chen**

STR.3.3 **G-Quadruplex Topologies Determine the Functional Outcome of Guanine- Rich Bioactive Oligonucleotides**
Prakash Kharel[1], Pavel Ivanov[2]
[1]University of Kansas Medical Center, [2]Harvard Medical School
Presenting Author: **Prakash Kharel**

1220-1345 **Lunch on own**

1345-1525 **STRUCTURE & DYNAMICS 4**

Moderator: Gary Parkinson, ***University College of London***

Quadruplex RNA That Inhibits the Interaction Between Aβ and its Receptor, Prion Protein, and In-Cell NMR Studies of Nucleic Acids Involving Quadruplex DNA
Inv.25 **Masato Katahira**, *Kyoto University*

DNA Sequences with the Potential to Form Five-Tetrad G-Quadruplexes
Inv.26 **Liliya Yatsunyk**, *Swarthmore College*

Functional Investigation of G-Quadruplexes in Viral Genomes and the Rational Design of G-Quadruplex-Targeted Antiviral Therapeutics
Inv.27 **Dengguo Wei**, *Huazhong Agricultural University*

STR.4.1 **Best Method to Determine DNA G-Quadruplex Folding: The 1H-13C HSQC NMR Experiment**
Jonathan Dickerhoff[1], Danzhou Yang[1]
[1]Purdue University
Presenting Author: **Jonathan Dickerhoff**

STR.4.2 **Probing Residual Water in G-Quadruplex Structures through Molecular Vibrations**
Valeria Libera[1], Sara Catalini[1], Francesca Ripanti[2], Luca Bertini[1], Martina Alunni Cardinali[1], Francesco D'amico[3], Barbara Rossi[3], Caterina Petrillo[1], Marco Paolantoni[1], Alessandro Paciaroni[1], Lucia Comez[4]
[1]University of Perugia, [2]Università Politecnica delle Marche, [3]Elettra Sincrotrone Trieste, [4]Istituto Officina dei Materiali
Presenting Author: **Lucia Comez**

STR.4.3 **Unraveling the Thermodynamics of I-Motif Formation**
San Hadzi[1], Mojca Pevec[1], Neza Zerjav[1], Uros Zavrtanik[1], Primoz Sket[2], Natasa Medved[3], Janez Plavec[3], Jurij Lah[1]
[1]University of Ljubljana, [2]Chemical Institute Ljubljana, [3]National Institute of Chemistry
Presenting Author: **Jurij Lah**

1525-1555 **Refreshment Break**

1555-1735 **BIOLOGY & DISEASE 4**

Moderator: Samantha Kendrick

Opposing Roles of Two R-Loop Associated G-Quadruplexes in Tuning Transcription Activity
Inv.10 **Sua Myong**, *Harvard University*

Viral Hijacking of hnRNPH1 Unveils a G-Quadruplex Driven Mechanism of Stress Control

Inv.11 **Katrin Paeschke**, *University Hospital Bonn*

Chemistry and Biology of G Quadruplex-Binding Proteins

Inv.12 **Yinsheng Wang**, *University of California, Riverside*

BIO.4.1 **The Changing Shape of DNA in the Insulin-Linked Polymorphic Region**

Zoë Waller[1], Dilek Guneri[1], Shozeb Haider[1], Gary Parkinson[2], Kamel El Omari[3], Zuzana Dvorakova[4], Effrosyni Alexandrou[2], Christopher Morris[2], Chris Waudby[2], Rupesh Chikhale 5, Daniel Pike[2]

[1]University College London, [2]UCL School of Pharmacy, [3]Diamond, [4]Institute of Biophysics, [5]CCDC

Presenting Author: **Zoë Waller**

BIO.4.2 **Designing an Expression Cassette to Study G-Quadruplex Formation in Bacillus Subtilis**

Polina Marchenko[1], Maria Vittoria Cottini[1], Sidra Ishrat[1], Pavol Vadovic[1], Jan Jamroskovic[1]

[1]Slovak Academy of Sciences

Presenting Author: **Jan Jamroskovic**

BIO.4.3 **The Role of BAZ2-Dependent Chromatin Remodeling in Suppressing G4 DNA Structures and Associated Genomic Instability**

Adrianna Vandeuren[1], Kierney O'dare[2], Rosemary Wilson[2], Patrick Van Eijk[2], Lindsay Julio[1], Shannon Macleod[1], Ella Chee[1], Annika Salpukas[1], Emma Kriz[1], George Lantz[1], Shellaina Gordon[1], Simon Elsässer[3], Simon Reed[2], Tovah Day[1]

[1]Northeastern University, [2]Cardiff University, [3]Ming Wai Lau Centre for Reparative Medicine

Presenting Author: **Adrianna Vandeuren**

1735-1900 **Dinner on own**

1900-2100 **POSTER SESSION 2**

Join us for Poster Session 2 to meet the scientists as they present their research. This event will feature light appetizers and a cash bar. A complimentary drink ticket is provided and can be found in the back of your name badge.

DAY 5: FRIDAY, JUNE 6, 2025

0800-1230 **REGISTRATION**

0830-1010 **TARGETING 1**

Moderator: Bruce Armitage, ***Carnegie Mellon University***

Optimized Targeting of the MYC Promoter G4 with DNAi
Inv.28 **Tracy Brooks**, *Binghamton University*

G4s Dictating Protein Folding, Misfolding, and Neurodegeneration
Inv.29 **Scott Horowitz**, *Denver University*

Enhancing Chemo-Sensitivity and Overcoming Drug Resistance in Cancer with G4 Ligands
Inv.30 **Antonio Randazzo**, *University of Naples*

TAR.2.2 Investigating the Interactions of Carbazole Ligands With I-Motif DNA
Anna Dembska[1], Klaudia Kmiecik[1], Agata Głuszyńska[1]
[1]Adam Mickiewicz University
Presenting Author: **Anna Dembska**

TAR.1.2 Harnessing G-Quadruplex Modulation as a Therapeutic Strategy in Neurodegenerative Diseases
Valentina Pirota[1], Stephana Carelli[2], Emmanuele Crespan[3], Mauro Freccero[1]
[1]University of Pavia, [2]University of Milan, [3]Institute of Molecular Genetics IGM-CNR
Presenting Author: **Valentina Pirota**

TAR.1.3 Hemopeptides Conjugates as Versatile Ligands for the Selective Binding of G-Quadruplexes
Leen Massalha[1], Adiel Richter-Levin[1], Nurit Adiram-Filiba[1], Eyal Golub[1]
[1]Bar-Ilan University
Presenting Author: **Eyal Golub**

1010-1040 **Refreshment Break**

1040-1150 **TARGETING 2**

Moderator: Tracy Brooks*, Binghamton University*

Worth Their Salt and Then Some: G4s Have Unique Stability and Catalytic Functions in Saline Solutions
Inv.31 **Aaron Engelhart**, *University of Minnesota*

Combination of DNA foldings at a Single Site
Inv.32 **Claudia Sissi**, *University of Padova*

Binding Thermodynamics of G-wires with Cellular Delivery Agents
Inv.33 **Lisa Prevette**, *St. Thomas University*

TAR.2.3 Interactions of Simple BODIPY Dyes with Various DNA G-Quadruplexes
Jakub Żubertowski[1], Magdalena Rapp[1], Jan Dolichter[2], Błażej Rubiś[2], Anna Dembska[1]
[1]Adam Mickiewicz University, [2]Poznan University
Presenting Author: **Jakub Żubertowski**

1150-1200 **Conference Closing**