

The Chromatographic Society and Separation Science Group of the Royal Society of Chemistry Analytical Division: Analytical Horizons in Oligonucleotide Separation Science (2025)

A preview of the Analytical Horizons in Oligonucleotide Separation Science meeting, which will take place on the 7-8th May at RSC Burlington House, Piccadilly, London.

We are pleased to announce the upcoming **Analytical Horizons in Oligonucleotide Separation Science** meeting, taking place on May 7th-8th, 2025, at the Royal Society of Chemistry's **Burlington House**, London. Organized by the Chromatographic Society and the Separation Science Group of the Royal Society of Chemistry, this event will feature a dynamic program with leading experts from the field.

The meeting will provide an insight into the latest innovations in the field of oligonucleotide analysis, including instrumentation, novel applications, practical advice and utilisation of these techniques in life sciences. The programme will cover a broad range of topics including: multidimensional chromatography, hyphenated techniques (including MS), SFC, sustainable method development and emerging digital tools.

Analytical Horizons in Oligonucleotide Separation Science offers a unique opportunity to engage with other professionals, share experiences, and expand your network. The event will provide delegates with a diverse program of interesting topics from highly regarded international speakers and new emerging professionals. With a comprehensive agenda, exhibition, and vendor presentations, we anticipate a thought-provoking and well-attended event.

The meeting is split into four sessions spread across two days.

Session 1:

Dr. **Nigel Richardson** (CatSci, UK) will open the first session, focussing on ON impurity analysis with a presentation on the unique "Chemistry, Manufacturing and Controls" (CMC) considerations in oligonucleotide pharmaceutical manufacture and development. He will address the current bottlenecks and challenges in separating and detecting oligonucleotide drug molecules.

Following which, Prof. **Mark Dickman** (School of Chemical, Materials and Biological Engineering, University of Sheffield, UK) will describe the major chromatographic challenges of all major modes of LC when separating ONs. These talks will outline the background of the current major challenges that motivate the subsequent talks.

Additionally, **Sarah Carrillo** (NIBRT, IE) will present advances in impurity analysis for forced degradation studies as well as novel approaches in ON quantification.

Session 2:

The second session will focus on novel technologies. Prof. **Michael Lämmerhoffer** (Institute of Pharmaceutical Sciences, University of Tübingen, DE) will outline his lab's efforts in approaching highly complex ON samples through multidimensional chromatography. In particular, how 2D-LC can be applied to the elucidation of diastereomer impurities in ONs, a major industrial challenge. Dr. **Ken Cook** (Bio-Separations, Thermofisher Scientific, UK) will explore the development of novel ion-pair free methods for ultra-high sensitivity and robustness with MS detection for QC analysis of ONs.

Session 3:

The third session on day two will focus on advances in analytical strategies and will open with Dr. **Imogen Howard** (AstraZeneca, Macclesfield, UK) will discuss novel analytical control strategies and the associated regulatory aspects which must be accounted for when manufacturing novel ONs. Dr. **Szabolcs Fekete** (Waters Corporation, Geneva, CH) who will demonstrate how oligonucleotide analysis has been reimagined with innovative LC techniques. Some of these approaches include novel use of gradients (multi-IP-RP, HILIC and IP-free gradients) and examination of concave gradients as well as exploiting on-off retention mechanisms.

Session 4:

Dr. **Jan Groels** (Novartis, Basel, CH) will open the final session on recent developments in oligonucleotide analysis with a discussion on the new digital tools which can streamline workflow efficiency when getting an ON to market. The final talk of the symposium will be given by Dr. **Paul Ferguson** (AstraZeneca, Macclesfield, UK). Who will be giving the industrial perspective on

sustainable chromatography as well as highlighting the initiatives of AstraZeneca in implementing sustainable separation modes without compromising the separation performance.

There will be the possibility to exhibit posters and interested presenters should submit an abstract to the organisers by 28th April 2025.

ChromSoc student bursaries are also available for this event. For further details, please visit <http://www.chromsoc.com/academic-support.aspx>

Further information on the meeting is also available at: <https://chromsoc.com/events/> and [Analytical Horizons in Oligonucleotide Separation Science](#)

For further information on the submission of abstracts, sponsorship or payment details email: adrian.clarke@novartis.com

Dr Adrian Clarke is a committee member of the Chromatographic Society, and the Analytical Network leader in Novartis Technical R&D, Basel, Switzerland.



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Event Programme

Day One- 7th May

09:30-10:30	Coffee and registration
	Session 1: Challenges and Opportunities of Oligonucleotides Separation Science and Hyphenated Techniques
10:30-10:40	Introduction and Welcome <i>Dr Adrian Clarke (on behalf of ChromSoc & RSC Separation Science Group, Novartis Pharma AG, Basel, Switzerland)</i>
10:40-11:10	Pharmaceutical CMC using Separation Science and MS <i>Dr Nigel Richardson, CatSci, UK.</i>
11:10-11:40	HPLC Analysis of Nucleic Acids: Challenges and Opportunities <i>Prof. Prof Mark Dickman, University of Sheffield, UK</i>
11:40-12:10	Forced Degradation Studies and ASO/siRNA Quantification <i>Dr Sarah Carillo, NIBRT, University of Dublin, Ireland.</i>
12:10-12:40	Chromatographic Method Development for Analysis of Deamination Impurities <i>Dr Rachelle Black, AstraZeneca, UK.</i>
Lunch, exhibition and posters	
	Session 2: Novel Formats and Technologies
14:00-14:30	Multidimensional Chromatography Applied to Oligonucleotides and Diastereomers <i>Prof. Michael Laemmerhofer, University of Tübingen, Germany</i>
14:30-15:00	Lessons Learned and Practical Considerations for Green ASO RNA Analysis and Data Handling. <i>Dr. Ken Cook, Thermo Fisher Scientific, UK.</i>
15:00-15:30	Ways to Prevent Ion-Pairing in LC-MS Analysis of Oligonucleotides <i>Dr Daniel Esser, YMC, Germany</i>
Coffee, exhibition and posters	
	Session 3: Novel Formats and Technologies Continued
16:00-16:30	Oligonucleotide Impurity Analysis Using an Innovative SFC Approach <i>Dr Shinnosuke Horie, Shimadzu Europe, Germany</i>
16:30-16:50	Oligonucleotides & Chromatography – What’s New?. <i>Dr. Andrea Krumm, TOSOH, Germany</i>
16:50-17:10	Analysis of Oligo Process-Related Impurities and Water Using GC-VUV <i>Dr Sam Whitmarsh, CatSci, UK.</i>
17:10-17:30	TBD
17:30 -19:00 Networking Event & Poster Viewing	

*Draft programme: titles and presenters subject to final confirmation

Day 2- 8th May

	Session 4: General Advances in Analytical Strategies
09:00-09:30	Posters and Coffee
09:30-10:00	Oligonucleotide Analysis Reimagined: Innovative LC Techniques <i>Dr Szabolcs Fekete, Waters AG, School of Pharmaceutical Sciences, University of Geneva, Switzerland.</i>
10:00-10:30	From Synthesis to Compliance: Analytical and Regulatory Considerations Across Oligonucleotide Manufacturing Processes <i>Dr Imogen Howard, AstraZeneca, UK.</i>
10:30-11:00	LC-based Methodologies for the Analysis of GalNAc and Fatty Acid siRNA Conjugates and Diastereomer Profiling <i>Dr Anthony Ehkirch, Novartis, Switzerland - LC</i>
Coffee, exhibition and posters	
	Session 5: Recent Developments in mRNA and ASO Analytics
11:30-12:00	A Unified, Online Platform to Determine Multiple mRNA Quality Attributes <i>Dr Alex Goyon, Genentech, US</i>
12:00-12:30	Mass Spectrometry-Based Sequence Mapping for mRNA Vaccines and Therapeutics. <i>Emma Welbourne, University of Sheffield, UK.</i>
12:30-13:00	Development and Assessment of Liquid Chromatography to Evaluate the Diastereomeric Profile of a 20mer Antisense Oligonucleotide <i>Dr Chung-Yao Wang, GSK, UK</i>
Lunch, exhibition and posters (including the Chromatography Society AGM)	
	Session 6: Further Advances and Sustainability
14:30-15:00	Digital Tools for Enhanced Efficiency in Oligonucleotide Analytics <i>Dr Jan Groels, Novartis, Switzerland -</i>
15:00-15:30	2D-LC analysis of oligonucleotides. <i>Dr Richard Blankley, Agilent, UK</i>
16:30-16:00	Sustainability Considerations in the Development of Oligonucleotide Chromatographic Methods. <i>Dr Paul Ferguson, AstraZeneca, UK</i>
16:00-16:10	Close of meeting <i>Dr Sam Whitmarsh, RSC SSG/BP UK.</i>

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