UEG WEEK 2024

Beyond education, a key pillar of UEG is research and clinical excellence

Congress Review

Review of United European Gastroenterology (UEG) Week 2024

Location:	Vienna, Austria
Date:	12.10.24–15.10.2024
Citation:	EMJ Gastroenterol. 2024;13[1]:10-18. https://doi.org/10.33590/emjgastroenterol/KWTD7634.

FOR THE sixth time, United European Gastroenterology (UEG) Week returned to the dazzling city of Vienna, Austria, gathering over 11,000 participants from 114 countries across the globe.

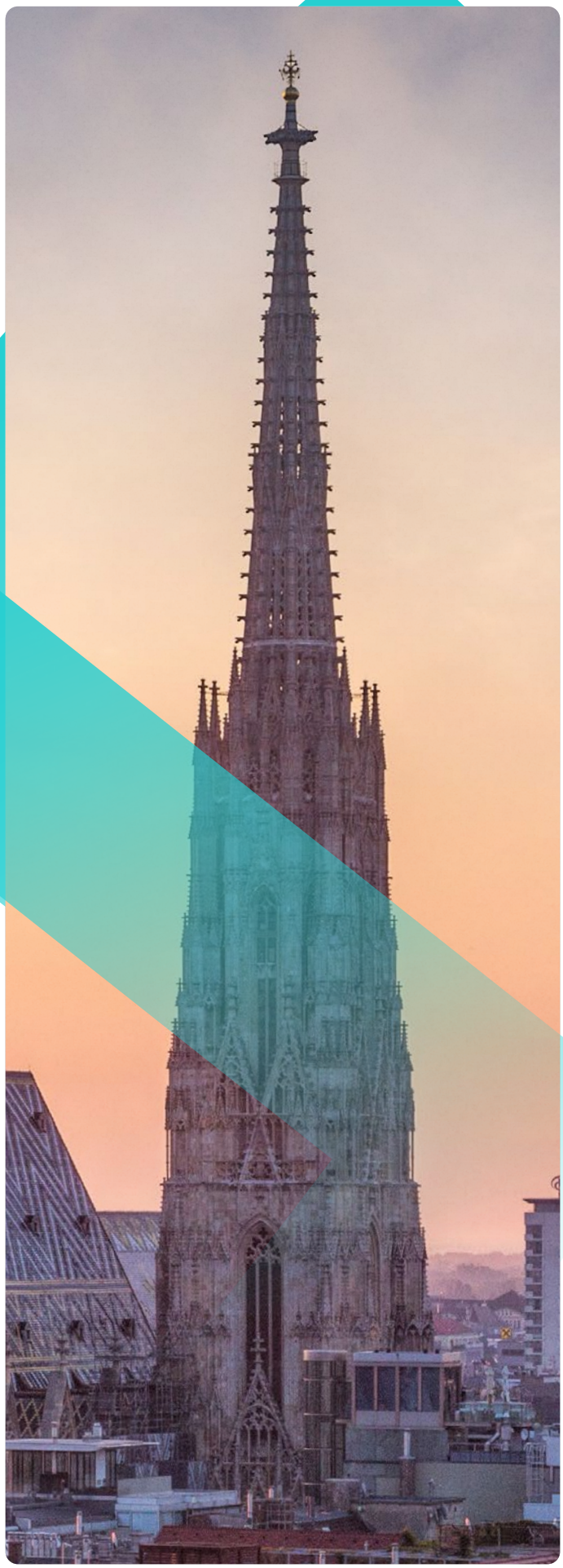
Inaugurating the opening plenary of the 32nd UEG Week, UEG President Matthias Löhr and UEG Scientific Committee Chair Julia Mayerle extended warm words of welcome to a packed hall. With research visibility as a key priority for UEG, Mayerle proudly announced that 700 moderated poster sessions were presented this year, among a staggering 3,800 abstracts, a record for UEG.

Marlies Schijven, Amsterdam UMC, the Netherlands, delighted the audience with her ingenious talk 'Serious Gaming in GI Disease: Playfully Preparing Generation Z', which provided a fresh perspective on how to educate the next generation of gastroenterologists. Nowadays, the average young person in the USA spends 10,000 hours gaming by the age of 21 years, only 24 hours less than time spent in a classroom in middle and high school, explained Schijven. Quoting Albert Einstein, she stated that "play is the highest form of research," and medical video games are a clever and innovative way to educate gastroenterologists. Serious gaming and gamification are emerging as the latest training technologies, and they are already proving their teaching effectiveness, stated Schijven, especially when combined with virtual reality. She urged the audience to foster understanding and collaboration between generations, explaining that only this concerted effort can truly transform the field of research.

Beyond education, a key pillar of UEG is research and clinical excellence, and prizes are awarded each year to the best five submitted abstracts to celebrate the people behind the research. This year, the award-winning abstracts spanned a variety of topics, from oesophageal disease to inflammatory bowel disease and immunology, showcasing the multidisciplinarity of UEG. Awardees Wentao Shao, Elaine Kilgour, Anne M. van der Waaij, Pim Stougie, and Arno R. Bourgonje were invited to the stage, followed by a talk from Bourgonje, who presented his abstract on pre-diagnostic antibody signatures for Crohn's disease and ulcerative colitis.

The ceremony continued with the prestigious UEG Research Prize, which was awarded this year to Enrique de-Madaria, Balmis General University Hospital, Alicante, Spain

> **Serious gaming and gamification are emerging as the latest training technologies**



for the WATERLAND trial, which evaluates normal saline versus lactated Ringer's solution for acute pancreatitis resuscitation. With patients recruited from 47 centres, 18 countries, and five continents, this is now the randomised controlled trial on acute pancreatitis with the most patients, and across the most countries.

Matthias H. Tschöp, Helmholtz Munich, Germany, then delivered an insightful talk on the immense potential of gut hormone co-agonists, which are revolutionising the field of obesity and metabolic syndrome. According to the WHO, 2.8 million people die each year as a result of being overweight or obese. GLP-1 receptor agonists are now responding to this unmet clinical need, explained Tschöp, and while obesity is not close to being 'cured' yet, these drugs are bringing us one step closer to overcoming the obesity pandemic. This could have significant implications for other diseases, potentially reducing the incidence of Type 2 diabetes, cardiovascular disease, kidney disease, dementia, and more.

Finally, the ceremony came to a close with the UEG 2024 Lifetime Achievement Award, which went to Paul Fockens, Amsterdam UMC, the Netherlands, a world-renowned pioneer in endoscopy and endosonography. Fockens has been heavily involved in postgraduate training worldwide, has served as past President of UEG from 2016–2019, and was elected an Honorary Fellow for the American, Japanese, and European Society of Gastroenterology. As a leading figure in education, innovation, and clinical excellence, Fockens set the stage for a week of high-quality, cutting-edge research in gastroenterology.

Read on for more in-depth coverage from UEG Week 2024, and stay tuned for UEG Week 2025, which will take place in Berlin, Germany, from 4th–7th October 2025!

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Pre-diagnostic Antibody Signatures Identified in Inflammatory Bowel Disease

AN AWARD-winning abstract presented at UEG Week 2024 has identified distinct antibody responses in Crohn's disease (CD) and ulcerative colitis (UC) that occur years before the disease is diagnosed. This finding could mark a crucial step towards developing preventive strategies for inflammatory bowel disease (IBD), a chronic, debilitating condition that currently requires lifelong medical treatment or surgery.

IBD is characterised by complex immunological changes, yet the specific antibody patterns involved in the early stages of disease development have remained elusive. While over 300 IBD-specific antibodies have been identified, this study aimed to provide an in-depth profile of systemic antibody responses before and after IBD onset.

By focusing on preclinical biomarkers, Arno Bourgonje, Icahn School of Medicine at Mount Sinai, New York, USA, and colleagues, hoped to shift the treatment paradigm from managing established disease to preventing its onset, an approach that has shown success in other autoimmune conditions like rheumatoid arthritis and Type 1 diabetes.

The research, part of the Lifelines Cohort Study in the Netherlands, involved 167,000 participants. The study identified 178 individuals who developed IBD during a median follow-up time until diagnosis of 3.9 years. Most individuals newly developed UC (n=123; 69.1%), followed by CD (n=44; 24.7%), and undetermined IBD (IBD-U; n=11; 6.2%). Using a cutting-edge technique known as phage-display immunoprecipitation sequencing (PhIP-Seq), the researchers profiled antibody responses against 344,000 antigens, including microbial, food, and immune antigens.

A total of 5,174 antibody responses were observed in 5–95% of participants. Notably, 59 antibodies were found to differ significantly between pre- and post-diagnosis stages, with 14 antibody signatures previously reported in established IBD. Following diagnosis, patients with IBD showed reduced antibody responses against Epstein-Barr virus-associated peptides, such as Epstein-Barr nuclear antigen-1 and capsid protein V26, as well as reduced antibodies against varicella-zoster virus, herpes simplex virus type 1, and noroviruses.

In contrast, individuals who developed CD exhibited increased pre-diagnosis responses to bacterial flagellins (notably from *Lachnospiraceae* and pathogenic *Legionella* bacteria).

> **Individuals who developed CD exhibited increased pre-diagnosis responses to bacterial flagellins**

Patients with UC showed elevated antibody responses to viral (human adenovirus C, enteroviruses B/C) and bacterial (pneumococcal histidine triad proteins) pathogens post-diagnosis compared to pre-diagnosis.

This research represents the first comprehensive, high-resolution analysis of antibody changes during the transition from preclinical to established IBD, offering a potential avenue for early detection and prevention of CD and UC.

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Austrian Experts Call for Nationwide Colorectal Cancer Screening

LEADING Austrian health experts gathered at UEG Week 2024 to push forward the implementation of a nationwide, quality-assured colorectal cancer (CRC) screening programme starting at age 45 years. This call comes in response to alarmingly high mortality rates and a rising incidence of CRC across Austria and Europe.

Between 2000–2019,

CRC cases in Europe increased by

33%

CRC mortality rose by

19%

CRC remains one of the deadliest forms of digestive cancer, and statistics from the UEG White Book 2 reveal a worrying trend. Between 2000–2019, CRC cases in Europe increased by 33%, and CRC mortality rose by 19%. In Austria, over 5,000 new cases were diagnosed in 2019, resulting in more than 2,500 deaths. In 2019, more than 20,000 women and over 23,000 men were living with CRC. Primary causes include lifestyle factors, including poor diet, smoking, alcohol consumption, and lack of physical activity.

Unlike other European countries such as Germany, which has offered widespread CRC screening for over two decades, Austria currently lacks a national screening initiative. Despite consensus on the benefits of early detection, the introduction of such a programme has been delayed due to differing interests within the Austrian healthcare system and varying approaches of federal states.

The Austrian Society for Gastroenterology and Hepatology (ÖGGH), the Austrian Cancer Aid Society, and other stakeholders are united in their call for a standardised, nationwide screening programme for CRC. Experts emphasise that early detection through routine screening, particularly colonoscopy, is the most effective way to prevent CRC or detect it in its early, more treatable stages.

"If polyps, which are potential precursors to CRC, are detected and removed during a colonoscopy, CRC can be prevented. This is a major advantage compared to other cancers. As a medical society, we urgently call for the nationwide implementation of a screening programme for everyone aged 45 to 75, as this could save many lives," stated Harald Hofer, President of ÖGGH.

New Imaging Technique Shows Promise for Personalised Oesophageal Cancer Treatment

A TOP abstract presented at UEG Week 2024 explored a breakthrough imaging technique aimed at improving treatment outcomes for patients with locally advanced oesophageal cancer (EC).

Currently, patients with EC are treated with a combination of neoadjuvant chemo(radio) therapy (nCRT) followed by surgery, but only 16–43% achieve a complete pathological response. To improve these odds, researchers are investigating the use of immune checkpoint inhibitors (ICI) that target PD-1 and PD-L1 proteins, but effective patient selection for ICI therapy remains challenging.

This new study tests a novel imaging method, ultrasound-guided quantitative fluorescence molecular endoscopy, designed to visualise PD-L1 protein levels in tumours. By using the fluorescently labelled ICI drug durvalumab-680LT, the technique allows for the visualisation of PD-L1 expression, offering a way to better select patients for ICI therapy. The aim is to assess both the safety and effectiveness of the technique in monitoring drug distribution across cancerous tissues before and after nCRT.

> **By using the fluorescently labelled ICI drug durvalumab-680LT, the technique allows for the visualisation of PD-L1 expression**

Fifteen EC patients scheduled for nCRT have been enrolled in the study so far, divided into different dose groups receiving 4.5 mg or 15 mg of durvalumab-680LT, or no dose as a control. A final group of patients will receive 25 mg of the drug.

Results so far are promising: fluorescence signal intensities were higher in tumour biopsies compared to healthy oesophageal tissue in both the 4.5 mg and 15 mg dose cohorts, indicating that durvalumab-680LT successfully targeted tumour tissue. Mucosal and ultrasound-guided spectroscopy gave similar results, with higher signals in tumour tissue both *in vivo* and *ex vivo* compared to healthy tissue. Furthermore, a broad range of fluorescence signals were observed within tumours, suggesting variability in PD-L1 expression among patients.

So far, the procedure has been well-tolerated, with no serious adverse effects reported. Further analysis will determine how well this technique correlates with traditional PD-L1 staining methods, and its potential to improve patient selection for ICI treatment. If successful, this innovative approach could guide more effective, personalised treatments for patients with EC in the future.

New Study Links Stress to Accelerated Colorectal Cancer Growth

NEW research, presented by Qing Li, Sichuan University of China, at UEG Week 2024, has revealed that chronic stress can accelerate the progression of colorectal cancer (CRC) by disrupting the balance of gut microbiota, specifically targeting bacteria vital to the body's immune response.

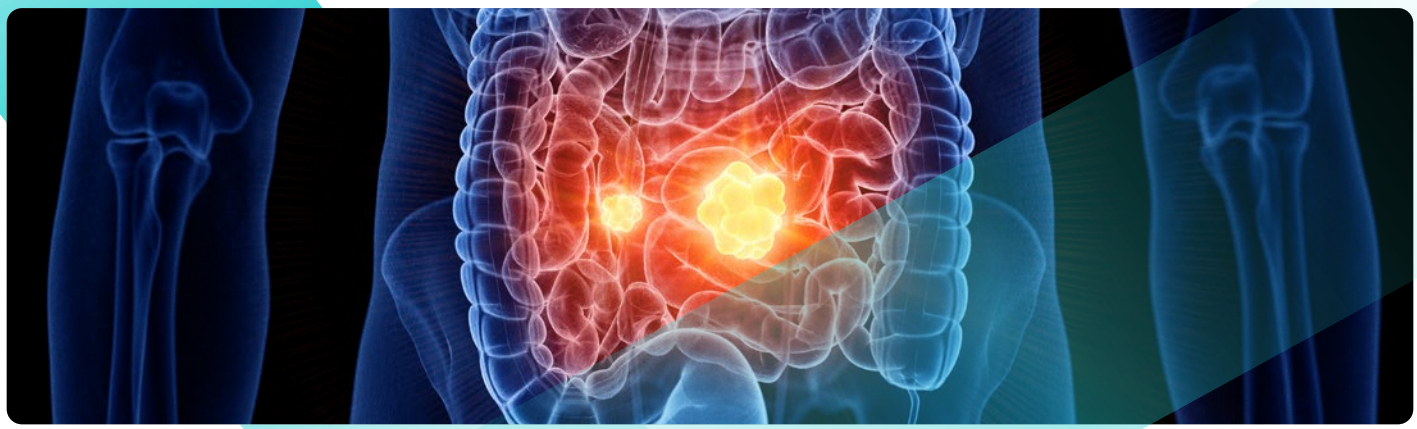
The study sheds light on how stress-induced changes in the gut can promote tumour growth, suggesting new preventive and therapeutic strategies against CRC. The researchers found that stress impacts gut bacteria, particularly reducing beneficial types within the *Lactobacillus* genus. *Lactobacillus* plays a key role in supporting the immune system, specifically by helping CD8+ T cells, which are crucial in fighting tumour growth.

In the study, when the researchers eliminated gut bacteria in mice using antibiotics, tumour progression was exacerbated, especially under chronic stress. However, supplementing with *Lactobacillus* in stressed subjects showed a reduction in tumour formation, underscoring its potential as a therapeutic target in CRC management.

The team conducted faecal microbiota transplantation to assess the effects of gut microbiota on tumour growth, finding that *Lactobacillus* plantarum, a strain of *Lactobacillus*, influences bile acid metabolism in a way that enhances CD8+ T cell function. This discovery suggests that restoring *Lactobacillus* could strengthen immune defences against CRC. Surprisingly, tests showed that *Lactobacillus* requires specific substances within the gut to activate CD8+ T cells, suggesting the need for a natural gut environment for optimal effectiveness.

The study's implications point to the positive impact *Lactobacillus*-based therapies could offer as a novel approach, especially when combined with traditional cancer treatments, for individuals dealing with chronic stress. This approach could have particular significance, given CRC's status as one of the most common cancers and leading causes of cancer-related death in Europe. The next phase of research will involve analysing faecal and tumour samples from CRC patients, aiming to establish whether reductions in *Lactobacillus* levels correspond with higher stress levels and weakened immune response.

> **"The study sheds light on how stress-induced changes in the gut can promote tumour growth"**



Novel Procedure May Eliminate Insulin Dependency in Type 2 Diabetes

PIONEERING research presented at UEG Week 2024 has revealed a new treatment approach for Type 2 diabetes (T2D) that could dramatically reduce, or even eliminate, the need for insulin therapy.

The first-in-human study involved 14 participants aged 28–75 years, with BMIs ranging from 24–40 kg/m²

Over 422 million people globally live with T2D, with most patients relying on insulin therapy to manage their blood sugar levels. However, insulin therapy often leads to side effects like weight gain, making diabetes management more challenging. The new treatment aims to offer a viable alternative.

The first-in-human study involved 14 participants aged 28–75 years, with BMIs ranging from 24–40 kg/m². Each patient underwent a novel procedure called Re-Cellularisation via Electroporation Therapy (ReCET), an endoscopic treatment that uses electroporation to ablate the duodenal mucosa and improve the body's sensitivity to endogenous insulin. After the procedure, patients followed a 2-week liquid diet before being started on semaglutide, which was gradually increased to a weekly dose of 1 mg.

At the 6- and 12-month follow-ups, 12 out of 14 participants (86%) had stopped using insulin, and they maintained good blood sugar control. At the 24-month mark, HbA1c levels remained below 7.5% for these patients. The treatment was well-tolerated, with 93% of participants reaching the maximum dose of semaglutide, although one experienced nausea.

"Unlike drug therapy, which requires daily medication adherence, ReCET is compliance-free, addressing the critical issue of ongoing patient adherence in the management of T2D. In addition, the treatment is disease-modifying: it improves the patient's sensitivity to their own (endogenous) insulin, tackling the root cause of the disease, as opposed to currently available drug therapies, that are at best disease-controlling," stated lead author Celine Busch, Amsterdam UMC, the Netherlands.

Encouraged by these results, the researchers are planning to launch larger randomised controlled trials to further validate the findings. The EMINENT-2 trial is now ongoing, with the addition of a sham procedure and mechanistic assessments to better understand how ReCET works.

An Innovative Obesity Treatment: Nanoparticles to Target Fat Absorption

A NOVEL approach to tackle obesity has been developed by researchers, in which an innovative nanoparticle system inhibits an enzyme called Sterol Oacyltransferase 2 (SOAT2) in the small intestine, subsequently reducing the body's capacity to absorb fat.

This groundbreaking research was presented at UEG Week 2024, showcasing a breakthrough in obesity treatment, and offers a potential avenue for preventing diet-induced obesity.

Despite extensive research in the field of fat metabolism, effective methods to inhibit intestinal fatty acid absorption have not yet been defined. Therefore, researchers have developed a revolutionary nanoparticle system designed to deliver small interfering RNAs (siRNA) directly to the small intestine. These siRNAs reduce *SOAT2* expression, thereby inhibiting fat absorption without affecting other metabolic processes. In pre-clinical trials, mice who received the nanoparticle therapy absorbed significantly less fat and were prevented from developing obesity, compared to untreated mice, even when on a high-fat diet. Alongside these promising results, this strategy offers the added benefits of being non-invasive and low in toxicity.

The study elucidated the mechanism by which SOAT2 regulates fat absorption, whereby inhibiting SOAT2 in the intestine promotes the degradation of CD36, a fat-transport protein, via cellular stress and recruitment of E3 ligase RNF5. Unlike liver-targeted SOAT2 inhibition, which has been associated with hepatic fat accumulation, this intestine-specific approach avoids such risks affecting the liver, thus enhancing treatment safety.

> **Mice who received the nanoparticle therapy absorbed significantly less fat and were prevented from developing obesity**

The study's findings indicate that this targeted therapy may be a promising alternative to clinical obesity treatment. Future research will focus on validating these results in larger animal models to confirm the nanoparticle system's safety and efficacy, with the long-term goal of clinical application in humans. By directly addressing fat metabolism and diet-related weight gain, this new therapy could reshape the landscape of obesity treatment.