26th Annual Meeting of the European Group for the study of Insulin Resistance, Lille, France, 7–8th June 2018

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It was appropriate for the EGIR group to meet in Lille. The term "Endocrinology" was originally coined there in 1893 by Édouard Laguesse (1861 – 1927) who in the same year named the cellular clusters of the pancreas after their earlier discoverer Paul Langerhans (in 1869). The 26th meeting of the group was hosted over 1.5 days by Professor Francois Pattou and excellently organized by Dr Caroline Bonner with the overall theme of "Abdominal Insulin Resistance".

The first session had a focus on endocrine functions of the intestine. Dr Giles Mithieux (Lyon, France) started by setting out evidence for intestinal gluconeogenesis (splanchnic glucose production) with sodium glucose transporter (SGLT)-3 acting as a glucose sensor in the portal vein, decreasing hepatic glucose production and providing a number of metabolic benefits through the gut–brain axis that appear to be stimulated by protein in the diet. This was followed by Dr Alexander Miras (Imperial College London, UK) who discussed a current surgical trial assessing whether leaving a longer biliopancreatic limb following a Roux-en-Y Gastric Bypass procedure may have beneficial metabolic effects, including on postprandial glucose regulation.

There followed abstracts on syntaxin phosphorylation as a potential novel target for glucose transporter-4 sorting in human muscle (Rachel Livingstone, Glasgow, UK) and a modeling study suggesting that saturation (rather than impaired sensitivity) at the level of the β-cell accounts for the lack of glucose-lowering efficacy of glucose-dependent insulinotrophic peptide in comparison to its more popular sibling, glucagon-like peptide 1 (Grespan, Padova, Italy).

Professor Francois Pattou (Lille, France) then gave an eloquent presentation on intestinal glucose absorption as a novel therapeutic target, showing remarkable PET images of intestinal glucose uptake (and its inhibition by SGLT1) using fluoro-deoxy glucose in a rodent model. He suggested that intestinal SGLT1 may be overactive in type 2 diabetes, leading to increased glucose uptake following dietary ingestion. Following biliopancreatic diversion, glucose absorption is reduced, a finding that may be mediated by a reduced intraluminal concentration of bile salts. In keeping with this notion, his recent work has shown that D-xylose absorption can be used as a test to predict relapse of type 2 diabetes following bariatric surgery.

After three further abstracts, the group broke for lunch, washed down in the French style with a light rosé.

The afternoon was kicked off by Bart Staels (Lille, France) who discussed recently-identified genes implicated as therapeutic targets for metabolic liver disease. These include PatatiN-like PhosphoLipAse domain-containing Protein 3 [for nonalcoholic fatty liver disease (NAFLD)], TM6SF2 (impaired very low density lipoprotein production and steatosis) and MBOAT7 (fibrosis). An additional "last minute" talk was then added to the programme by Markus Muhlemann (Würzburg, Germany) showing data indicating higher islet glucagon and insulin content in SGLT1-deficient mice fed a glucose-deficient, fat-enriched diet.

After further abstract presentations, the newly-elected President of the group, Amalia Gastaldelli (Texas, USA; Pisa, Italy) took the floor to present data on liver-muscle cross-talk, showing that elevation of branched-chain amino acids in NAFLD is likely a consequence of insulin resistance and increased protein catabolism. This was followed by the outgoing President, Ele Ferrannini (Pisa, Italy), who provided data suggesting a novel link between insulin resistance and glucagon-like peptide 1 resistance.

After the heat of the afternoon, delegates lost no time in reconvening for refreshments in the "café culture" of a late afternoon in early summer in central Lille – an unexpected gem; then straight to an excellent local restaurant for gastronomy courtesy of the hosts.

Cutting to the following morning, Adrian Liston (Leuven, Belgium) opened with a presentation on β-cell fragility as a common aetiopathological factor between types 1 and 2 diabetes, with specific genes conferring protection against metabolic stress (e.g. NOD mice-deficient in *GLIS3* develop diabetes). Sven Gopel (AstraZeneca, Sweden) then presented elegant data on the effect of the SGLT2 inhibitor dapagliflozin on coronary flow reserve in ob/ob mice. He proposed direct

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effects on vascular smooth muscle, with depolarisation occurring either as a result of potassium efflux or sodium influx.

Patrick Rorsman (Oxford, UK) then turned the spotlight on delta cells, which form 5% of the cells of the pancreatic islets. As their product somatostatin is perturbed in some animal models of diabetes mellitus, he used a delta cell-specific insulin receptor knockout to show how appropriate hypoglycaemia-induced glucagon secretion might be restored by somatostatin receptor 2 antagonists; these are now being proposed as adjunct agents in type 1 diabetes.

In the final invited talk, Jean-Sebastian Annicotte (Lille, France) then spoke on cell cycle regulators including E2f1 (target of retinoblastoma protein) which has a role in regulating lipid synthesis and glycolysis. E2f1 deletion completely abrogated hepatic steatosis in murine models of NAFLD.

There followed final abstract presentations, including one by Chetboun (Lille, France) which reported a negative correlation between cigarette smoking pack-years (in the donor) and both directly-measured and functional islet cell mass.

In summary, European Group for the study of Insulin Resistance delegates were once again treated to a veritable feast of cutting-edge metabolic science in a warm and friendly context, with the ability to discuss and directly question leading figures in the field (the beauty of smaller scientific meetings). The European Group for the study of Insulin Resistance group has now become in the final stage of becoming an official study group of the European Association for the Study of Diabetes and is embedded within a number of multicentre European projects. The next meeting will be in Lisbon in May 2019, hosted by Dr John Jones (Coimbra, Portugal). New members are always welcome (*https://www.easd.org/egir-study-group.html*).

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Conflicts of interest

There are no conflicts of interest.