JUEVES/ Thursday, November / 5th

08:15  Recogida de Acreditaciones / Registration

08:30  Bienvenida y apertura / Welcome & Opening

Session 1  NUTRICIÓN, LÍPIDOS Y ATEROSCLEROSIS / NUTRITION, LIPIDS AND ATEROSCLEROSIS I

Moderador / Chairperson: José A. Gutiérrez-Fuentes. Fundación Lilly, Madrid, Spain

08:45  Elaine Holmes
Department of Biomolecular Medicine, Imperial College London, London, UK

Evolución del microbioma humano, salud y predisposición a enfermedades / Human microbiome evolution, health and predispositions to diseases

The complex interplay between human metabolism, nutrition and disease is influenced by the gut microbiota, which have co-evolved with their host. Metabolic profiling studies can be used to disentangle the various gene-environmental interactions and to explore the role of the microbiome in relation to nutrition, obesity and cardiovascular disease. Here an introduction to the basic analytical technology is provided followed by specific illustrations of application drawn from a mixture of animal models, targeted clinical studies and epidemiological cohorts.

09:15  G. Harvey Anderson
Department of Nutritional Sciences, University of Toronto, Toronto ON, Canada

Patrones dietéticos, funcionalidad de los alimentos y enfermedad crónica / Dietary patterns, food functionality and chronic disease

Global dietary guidance suggests the Western Dietary pattern is a major cause of chronic disease. Many of its traditional foods have been identified by epidemiology as risk factors. Yet international cardiovascular disease statistics provide an obvious challenge to these assumptions. For example, Canadians have a Western Dietary pattern but die from cardiovascular disease (CVD) at a rate 60% less than Americans, with a similar dietary pattern. Canadians have CVD death rates similar to Japan, France, and Spain, countries with very different dietary patterns and eating behaviors. Thus it is clear that a greater emphasis needs to be placed on understanding the role of physiological functionality of food, food components and food behavior as health determinants.

09:45  J. Alfredo Martínez
Dept. of Physiology and Nutrition, University of Navarra, Pamplona, Spain

Respuesta genotipo-dependiente a la dieta: Hacia una nutrición personalizada en el obeso / Genotype-dependent response to diets: Towards personalized nutrition in the obese

Obesity as a complex syndrome with a multifactorial origin may be explained in some circumstances by monogenic mutations, but in most cases appears as a polygenic condition, which is additionally affected by a myriad of environmental influences (dietary and physical activity patterns). Identification of candidate genes may allow providing individual specific recommendations (dietary advice and/or drug therapy) to achieve effective weight loss and successful long-term maintenance of weight loss, on the basis of an identified genetic susceptibility. However, at this moment it is premature to offer targeted obesity therapy based on the information of the genotype/weight loss association studies published to date. In the future, the advance in molecular genetic biotechnology will ease the way to combine the search for new candidate genes, novel polymorphisms, and gene expression patterns putatively involved in gene-nutrient interaction concerning weight homeostasis given the complexity of weight loss responses. Indeed, it is envisaged that the different genotype-dependent responses to diets will contribute to develop personalized nutrition based upon the genetic make up.

10:15  Discusión / Discussion General Topic 1
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**Session 2**

**NUTRICIÓN, LÍPIDOS Y ATEROSCLEROSIS / NUTRITION, LIPIDS AND ATEROSCLEROSIS II**  
**Moderador / Chairperson: Jesús Millán. President Spanish Atherosclerosis Society**

11:15  
**Dariush Mozaffarian**  
Department of Epidemiology and Nutrition, Harvard School of Public Health, Boston, MA, USA

**Ácidos grasos trans, salud cardiovascular e implicaciones normativas / Trans fatty acids, cardiovascular health, and policy implications**

Consumption of industrially produced transfatty acids (TFA) is associated with substantial risk of coronary heart disease, and possibly diabetes and sudden cardiac death. TFA intake has adverse effects on multiple lipid and nonlipid risk pathways, with an overall constellation of effects that is unique among dietary fats. Both individual-level and policy-level initiatives to reduce the global consumption of industrial TFA intake should be a priority.

11:45  
**José M. Ordovás**  
Nutrition and Genomics Laboratory, Tufts University, Boston, MA, USA. CNIC, Madrid, Spain.

**Globalización del estilo de vida: ¿Demasiado rápido para la lenta adaptación del genoma? / Globalization of lifestyle: Too fast for our low pace genome?**

The new technological advance in genomic is allowing an increasingly deeper knowledge of our genetic makeup including the interindividual differences in our genomes. The current estimates are that human genomes contain about 10 million polymorphic sites that makes each one of us look, act, age and respond different to outside stimuli, such as nutritional factors. Many of these differences are random mutations, but others have been selected because of evolutionary pressures to adapt to the environment. However, in the current process of globalization, some of these polymorphisms could place individuals to a higher risk of chronic diseases. The identification of these variants can be used to achieve better disease prevention and treatment.

12:15  
**Antonia Trichopoulou**  
Department of Hygiene and Epidemiology, University of Athens Medical School, Athens, Greece

**Aceite de oliva, dieta mediterránea y salud / Olive oil, Mediterranean diet and health**

The health promoting traditional Mediterranean diet reflects the eating habits of the populations in the olive-growing areas of the Mediterranean region until the early 1960s. Olive oil forms the basis for the preparation of the majority of Mediterranean recipes, while as a single food entity it has beneficial health properties which have been associated with the longevity of the Mediterraneans. Mechanisms of action involve its high monounsaturated fatty acids content and, probably, the presence of antioxidants or other minor constituents of biological significance such us phenolic compounds and squalene. The high nutritional value of olive oil, in conjunction to its cultural and culinary dimensions, lay a promising foundation enabling its wide use at home, in mass catering and in semi-industrial scale, in the producing areas as well as internationally.

12:45  
**Discusión / Discussion General Topic 2**

<table>
<thead>
<tr>
<th>Seminario 1</th>
<th>Seminario 2</th>
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<tbody>
<tr>
<td><strong>13:15</strong></td>
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| Ponente: Juan A. Gómez-Gerique  
Factores de riesgo emergentes / Emerging risk factors | Ponente: Miguel A. Rubio  
Dieta y prevención de enfermedad coronaria / Diet and CHD prevention |

**14:15**  
**Almuerzo / Lunch**

**Session 3**

**SOBRE LA PATOFISIOLOGÍA DEL METABOLISMO LIPÍDICO / ON LIPID METABOLISM PATHOPHYSIOLOGY**  
**Moderador / Chairperson: Rafael Carmena. Endocrinology and Nutrition Service, Hospital Clínico of Valencia, Spain**

15:30  
**Patricio López-Jaramillo**  
Research Institute, Fundación Cardiovascular de Colombia, Floridablanca, Santander, Colombia

**Enfermedades cardiometabólicas: papel de la programación fetal en respuesta a la desnutrición materna / Cardiometabolic diseases: role of fetal programming as a response to mother’s undernutrition**

In Latin America, there is a high level of susceptibility to the development of insulin resistance and low-grade inflammation at relatively low levels of abdominal obesity. This susceptibility is associated with the adaptive response of the fetus to deficient fetal nutrition, which results in a loss of anatomical structures such as nephrons, cardiomyocytes and pancreatic beta cells. These adaptations may prove detrimental if food becomes abundant again after birth. The high prevalence of maternal and fetal malnutrition could mean that the resulting fetal adaptations may contribute to an increased risk of cardiometabolic disease.
Familial Combined Hyperlipidemia (FCHL) is an oligogenic disorder which causes 15-20% of premature coronary disease. Variable lipoprotein phenotypes occur in families and in a single person. ApoB is always elevated and small-dense LDL present. One genetic locus relates to the elevation of apoB, which is neither the apoB nor the LDL receptor genes. The lipid locus has been associated with the genes for lipoprotein lipase, USF1, and the apoAI, CII, AIV, AV locus.

Estructura de HDL, metabolismo y función: enfoque sobre la HDL3 densa / HDL structure, metabolism and function: Spotlight on dense HDL3
The complex intravascular metabolism of HDL underlies their structural and functional heterogeneity. The anti-inflammatory and anti-oxidative activities of HDL particles are highly relevant to their atheroprotective action. Among the major HDL particle subpopulations, small dense HDL3 exhibit the most potent anti-oxidative activity on a per particle basis. Significantly, the proteome of dense HDL3 is distinct from that of other HDL subpopulations, and is a major determinant of its anti-oxidative activity. These studies support the contention that the metabolism, structure and function of HDL particles are intimately related.

Diseases of the heart are responsible for the first cause of death in the western world. Over the recent years, cumulative epidemiological and experimental data have shown that exposure to air pollutants lead to increased cardiovascular ischemic events and enhanced atherogenesis. It appears that these associations are much stronger with the air particulate matter (PM) component and that in urban areas, the smaller particles could be more pathogenic, as a result of their greater propensity to induce systemic prooxidant and proinflammatory effects leading to the development of dysfunctional HDL and promotion of atherosclerosis.

La evidencia epidemiológica a gran escala colabora a evaluar los biomarcadores en enfermedad cardiovascular / Using large-scale epidemiological evidence to help evaluate biomarkers in cardiovascular disease
Until recently, the potential relevance of genetic, biochemical and lifestyle factors to coronary heart disease have been studied in relative isolation from one another. Although this approach has yielded some major insights, it has resulted in a fragmented and incomplete understanding of the relative importance and interplay of nature and nurture in the development of coronary risk. This talk provides a critical review of the strengths and limitations of established and emerging epidemiological approaches to the study of the separate and combined effects of genetic, biochemical and lifestyle factors in coronary heart disease.
10:40  Marja-Riitta Taskinen  
Helsinki University Hospital, Helsinki, Finland

Anomalías de las lipoproteínas ricas en triglicéridos (TRLs) en la Diabetes tipo 2 y la Resistencia insulínica / Abnormalities of triglyceride rich lipoproteins (TRLs) in Type 2 diabetes and insulin resistance

Both insulin resistance and Type 2 diabetes are characterized by dyslipidemia which is a common and important CVD risk factor. Diabetic dyslipidemia is a cluster of potentially atherogenic lipid and lipoprotein abnormalities that are metabolically interrelated. A fundamental defect seems to be an overproduction of large VLDL particles which initiates a sequence of lipoprotein changes resulting in higher levels of remnant particles, smaller LDLs and lower levels of HDL particles. Substantial evidence supports the concept that overproduction of large VLDL particles is driven by increased liver fat content in man. We also reported that insulin fails to suppress VLDL production in subjects with high liver fat volume. Thus, hepatic insulin resistance seems to cover also pathways of lipid metabolism in the liver.

11:10  Peter Arner  
Department of Medicine at Karolinska Institute, Huddinge University Hospital, Sweden

Celularity del tejido adiposo como factor novedoso de riesgo para el Síndrome Metabólico y la enfermedad cardiovascular / Adipose tissue cellularity as a novel risk factor for Metabolic Syndrome and CV risk

Recent studies suggest that adult human adipose tissue is in a highly dynamic state. There is marked ongoing adipogenesis and cell death leading to that 10% of the fat cell population is renewed every year. This may influence the cellularity of adipose tissue so that some subjects develop a hyperplastic adipose tissue (many small fat cells) and others a hypertrophic adipose tissue (few large fat cells). Adipose hyperthrophy is linked to type 2 diabetes, hypertension, insulin resistance and dyslipidemia. Thus the turnover of human fat cells may be an important factor in the development of metabolic syndrome and CV risk.

11:40  Discusión / Discussion General Topic 4

Session 5

LAB-TECH & THERAPY ADVANCES IN CARDIOVASCULAR DISEASE
Moderador / Chairperson: Vicente Bertomeu. Cardiology / Hypertension Service, Universitary Hospital Sant Joan d’Alacant, Alicante, Spain

12:10  Carlos Macaya  
Instituto Cardiovascular, Hospital Clínico San Carlos, Madrid, Spain

Nuevos avances en cardiología intervencionista / New advances in interventional cardiology

“Interventional cardiology”, a branch of cardiology that dates back to the 80’s, has undergone whirlwind evolution in all cardiovascular disease, from heart disease to valve disease. The most relevant advances in the last two years have been: 1) percutaneous implantation of valve prostheses, and of mitral valve repair; 2) the development of new cardiovascular imaging techniques such as optical coherence tomography (OCT) and spectral analysis of ultrasound signals provide new information on the pathophysiology of arteriosclerosis, permitting us to discover the composition of arteriosclerotic plaque (virtual histology) and providing a better therapeutic approach; 3) finally, the new biodegradable stents have been shown to have a better biological response following implantation and therefore give us reasonable hope that they will become the treatment of choice in the not-so-distant future.

12:40  Guy De Backer  
Gent University, University Hospital, Gent, Belgium

Eficacia y beneficios de la terapia farmacológica hipolipemiantes. Las nuevas Guías Europeas para la prevención cardiovascular / Efficacy and benefits of lipid-lowering drug therapy. The new European Guidelines for cardiovascular disease prevention

Cardiovascular disease (CVD) can be prevented by intervening on the major modifiable risk factors such as smoking, elevated blood pressure and elevated total or LDL cholesterol. All guidelines on CVD prevention recommend to adjust the intensity of preventive actions in accordance with the total CV risk of the individual. In the most recent guidelines of he 4th Joint European Societies’ Task Force the use of non-pharmacological approaches are considered as the cornerstone in all circumstances: no smoking, taking sufficient exercise and a healthy diet. In the general population the goal is to keep them at low CV risk; for total and LDL cholesterol the targets are respectively < 5 and < 3 mmol/l. In those at high risk and in particular in patients with established CVD, with diabetes type 2 or type 1 with microalbuminuria or with severe hyperlipidaemia the aim is to reduce total cholesterol to < 4.5 mmol/l or < 4 mmol/l if feasible and LDL cholesterol to < 2.5 mmol/l or < 2 mmol/l if feasible.
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<td>A.I. Virtanen Institute for Molecular Sciences, Department of Biotechnology and Molecular Medicine, University of Kuopio, Finland</td>
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<td>Epigenética y aterosclerosis / Epigenetics and atherosclerosis</td>
<td>Epigenetic mechanisms modify expression of many important genes involved in the pathogenesis of atherosclerosis. It appears that both endogenous and exogenous factors can have direct and relatively rapid effects on genomic function via methylation of DNA and methylation and acetylation of histones. It is likely that better understanding of these mechanisms will lead to new possibilities for the treatment of several chronic diseases, including atherosclerosis-related diseases.</td>
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**SEMINARIOS**

**Seminario 1**

**Ponente:** Juan A. Gómez-Gerique  
Jueves 5, 13:15 h y Viernes 6, 08:15 h

**Factores de riesgo emergentes / Emerging risk factors**

Existen una serie de marcadores que han demostrado que pueden añadir valor en la estimación individual del riesgo cardiovascular; si bien la lista es relativamente extensa, solo unos pocos han sido validados e incorporados en alguna recomendación científica sobre su uso. Este es el caso de la lipoproteína (a) (valor de decisión: superior a 30 mg/dl), Homocisteína (valor de decisión: superior a 12 microgramos/L) y la cPCR (valor de decisión: superior a 3 mg/L). Si dos de estos marcadores son “positivos” (magnitud superior al valor de decisión), se considera que el nivel de riesgo estimado debe aumentarse un escalón sobre el obtenido con los factores de riesgo convencionales.

**Seminario 2**

**Ponente:** Miguel A. Rubio  
Jueves 5, 13:15 h y Viernes 6, 08:15 h

**Dieta y prevención de enfermedad coronaria / Diet and CHD prevention**

Revisión del papel de patrones alimentarios, alimentos y nutrientes en el desarrollo de las enfermedades cardiovasculares, más allá de la teoría lipídica clásica. Se hace una puesta al día de la calidad de la grasa alimentaria, pero también con atención particular a nutrientes capaces de modular la inflamación y el síndrome metabólico (carga glucémica, papel de la fructosa) así como el papel de los flavonoides y otros antioxidantes, de la suplementación vitamínica, esteroides vegetales, soja y otros alimentos funcionales.

**INFORMACIÓN GENERAL**

- **Conferencias:** 30-minute talks; 30-minute discussion after each session.
- **English <> Spanish simultaneous translation.**
- **Seminarios:** Dirigidos a la discusión y orientación de aspectos prácticos relacionados con la prevención, el diagnóstico y el tratamiento, en grupos reducidos. Sólo español / Only spanish

**PROMOTORES Y PATROCINIO**

Carlos Macaya, Jesús Millán, Juan A. Gómez-Gerique, Miguel A. Rubio, Agustín Gómez de la Cámara, José A. Gutiérrez-Fuentes

**LUGAR DE CELEBRACIÓN**

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