# 27th Annual Meeting of the European Society of Human Reproduction & Embryology

**Stockholm, Sweden**
**3 to 6 July 2011**

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# ESHRE 2011 Itinerary

⚠ denotes presentations are in conflict

## Posters

### Andrology

**Entire meeting**

**P-028** Myo-inositol: direct and indirect positive effects on sperm motility
G. Carlomagno, M. Colone, R.A. Condorelli, A. Stringaro, A.E. Calogero

### Embryology

**Entire meeting**

**P-113** Phospholipase C beta 1 as a possible oocyte factor responsible for successful oocyte activation and embryo development
**F. Vanden Meerschaut**, B. Heindryckx, C. Qian, D. Deforce, L. Leybaert, P. De Sutter

### Female (in)fertility

**Entire meeting**

**P-273** The addiction of melatonin to myo-inositol plus folic acid improve oocyte quality and pregnancy outcome in IVF cycle. A prospective clinical trial
**A. Nazzaro**, A. Salerno, S. Marino, C. Granato, E. Pastore

**Entire meeting**

**P-280** Influence of follicle size on gene expression in cumulus cells of women stimulated for IVF
**S. Wathlet**, T. Adriaenssens, G. Verheyen, W. Coucke, J. Smitz

## Wednesday 6 July PM

*Hall A2*

### Session 70: Andrology and seminal factors

**14:30**

***O-279*** Individualized sperm samples microarray analyses reveals differences among infertile patients achieving or not pregnancy by intrauterine insemination
**S. García-Herrero**, M. Meseguer, J.A. Martinez-Conejero, L. Romany, M. Ruiz, J.A. Horcajadas, A. Pellicer, N. Garrido

# ESHRE 2011

# Selected Abstracts

## Abstracts Disclaimer

# ESHRE 2011 Selected Abstracts

***Poster viewing session:***
**Andrology**

P-028

## Myo-inositol: direct and indirect positive effects on sperm motility

G. Carlomagno[1], M. Colone[2], R.A. Condorelli[3], A. Stringaro[2], A.E. Calogero[3]
*[1]AGUNCO, Obstetrics and Gynecology Center, Rome, Italy; [2]National Institute of Health, Department of Technologies and Health, Rome, Italy; [3]University of Catania, Department of Biomedical Sciences, Catania, Italy*

**Introduction:** About one third of male infertility is due to oligoasthenoteratospermia (OAT), a condition characterized by the production of semen with low number and reduced motility of spermatozoa. Due to its multifactorial origin, no therapy is currently available for OAT. Several studies suggested that oxidative stress could play a major role in OAT etiology. Indeed, spermatozoa plasma membrane is rich in phospholipids containing polyunsaturated fatty acids (PUFA), and it has been shown that a correct redox status is essential to maintain spermatogenesis. Oxidative stress negatively affects not only spermatozoa morphological features (i.e., head and tail structures), but it can also induce damage to sperm DNA. In ART clinical practice, the use of spermatozoa with damaged DNA will result in failure of the fertilization process.
The aim of the present study was to evaluate the effects of myo-inositol (MI), a polyalcohol with scavenger activity present at high concentrations in healthy seminal fluid, on sperm quality of OAT patients.
**Materials and Methods:** Seminal fluid samples were collected from healthy volunteers (10 subjects) and OAT patients (15 patients) and were analyzed by phase contrast microscopy to evaluate spermatozoa motility.
Samples were treated with MI 2mg/ml. Analysis of sperm structures was performed by scansion electron microscopy (SEM) and transmission electron microscopy (TEM).
To better evaluate the effect of MI on the sperm cell, mitochondrial membrane potential ($Dy_m$) was evaluated by using the carbocyanine fluorescent probe 5,50,6,60-tetrachloro-1,10,3,30-tetraethylbenzimidazolylcarbocyanine iodide (JC-1). The staining procedure was performed according to manufacturer instructions. Control and pathologic samples were analyzed before and after treatment with MI.
**Results:** Electron microscopy pictures consistently showed that pathologic samples were entirely covered by amorphous material observed throughout the microscopic field; this material was almost absent in control samples. After MI treatment, the microscopic filed of both control and pathological samples did not show the presence of amorphous material to any extent. Furthermore, changes in sperm cell morphology were observed: indeed, thicker midpieces were present in spermatozoa treated with MI in both control and OAT samples.
Analysis of spermatozoa structures via TEM showed several other differences between control and OAT sperm. In particular, OAT samples showed altered mithocondrial ridges, which improved after MI treatment.
$Dy_m$ was measured to evaluate whether MI induced changes at both structural and functional levels: before treatment, the percentage of sperm cells with high $Dy_m$ was significantly lower in OAT vs control samples (90.56±2%control 45.86±10%$p<0.05$); this difference disappeared after treatment with MI. Looking at the sperm population having low $Dy_m$, it was possible to observe a small percentage of sperm cells belonging to the examined population in the control group (7±3.82%), while the opposite was observed in OAT samples (49.8±8.46% $p<0.05$). Interestingly, after MI treatment the population with low $Dy_m$ was significantly reduced in both control and OAT samples (49.8±8.46%; 14.8±9.85% $p<0.05$).
**Conclusions:** Our results suggest that MI is a key factor in regulating sperm motility. Indeed, MI treatment was able to dissolve the amorphous material observed in OAT samples, which is probably responsible for the increased viscosity of the seminal fluid in OAT patients. Normal seminal fluid contains high MI concentrations; therefore, MI could be one of the key factors regulating seminal fluid viscosity in healthy subjects. The increase in the percentage of sperm cells with high $Dy_m$ induced by MI in OAT samples might be related to MI scavenger properties. Previous studies have shown a positive correlation between high $Dy_m$ and sperm motility. Therefore, MI might positively influence sperm motility in two different ways: indirectly by reducing seminal fluid viscosity, and directly by increasing sperm motility.

***Poster viewing session:***
**Embryology**

P-113

## Phospholipase C beta 1 as a possible oocyte factor responsible for successful oocyte activation and embryo development

**F. Vanden Meerschaut**[1], B. Heindryckx[1], C. Qian[1], D. Deforce[2], L. Leybaert[3], P. De Sutter[1]
*[1]Ghent University Hospital, Department of Reproductive Medicine, Gent, Belgium; [2]Ghent University, Laboratory of Pharmaceutical Biotechnology, Gent, Belgium; [3]Ghent University, Department of Basic Medical Sciences - Physiology Group, Gent, Belgium*

**Introduction:** Failures in fertilization, embryo development and implantation still occur after ART. The sperm-derived phospholipase C zeta (PLC#) is thought to be the main factor responsible for successful oocyte activation and is essential for later pre- and post-implantation development. PLC# generates calcium oscillations in the ooplasm via the inositol-3-phosphate pathway. Several observations suggest also a role for PLC#1, an endogenous oocyte PLC, to sustain these calcium oscillations. Reducing PLC#1 by a knockdown approach resulted in a decrease of the amplitude of the calcium transients. PLC#1-knockout (KO) mice display retarded growth and low viability after birth. In addition, when they survive, they are subfertile. In this study PLC#1 KO mice were used to study calcium oscillations and pre-implantation development.