Curriculum vitae Maria Scrascia

Personal data
Name: Maria Scrascia
Date of Birth: the 2nd of January, 1973
Address: Via Amendola 165/A, 70126 Bari, Italy
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Education
University of Bari
March 2003 Ph.D. in Genetics and Molecular Evolution
Research title: Molecular-genetic characterisation, antimicrobial resistances and geographical distribution of Vibrio cholerae epidemic clones in East Africa

October 1998 Degree in Biology (final mark 110\110)

Research activity
December 2012-present: researcher at the University of Bari "Aldo Moro" (Department of Biology)

September 2003–May 2008: Post-doctoral fellowship
University of Bari, Bari, Italy
Supervisor: Carlo Pazzani, Ph.D
Research topics: identification and characterization of mobile genetic elements in multidrug resistant strains of Vibrio cholerae O1; molecular characterization of non-cultivable bacteria of environmental origin

February 2003–Aug 2003: Post doctoral fellowship
MRC, Human Genetics Unit, Edimburgh, UK
Supervisor: Prof. Howard Cooke
Research topic: Kinetochore chromatin assembly by the histone H3 variant CENP-A in human fibroblasts

November 1998–Nov 2002: PhD student
University of Bari, Bari, Italy
Supervisor: Carlo Pazzani, Ph.D
Research topic: molecular epidemiology of Vibrio cholerae O1 strains isolated in East Africa in the late 1990

June 1997–Oct 1998: Undergraduate student
University of Bari, Bari, Italy
Supervisor: Carlo Pazzani, Ph.D
Research topic: antimicrobial resistance of Vibrio cholerae O1 epidemic strains isolated in East Africa

Research skills
Microbiology: horizontal gene transfer by conjugation and transformation; bacteria characterization by molecular typing techniques (e.g. PFGE; DGGE); assessment of

antimicrobial resistance (disk diffusion and MIC), resistance gene detection and associated genetic elements.
Molecular biology: cloning, plasmid libraries, mutagenesis, PCR, RT-PCR, *in silico* analysis.
Human genetics: Cell culture, Fluorescent In Situ Hibridization (FISH) on metaphases of human fibroblasts, immunostaining

Teaching activity
Since 2015: Teaching microbiology for graduate level, course of Conservation and Restoration-University of Bari
2014-2015: Teaching microbiology for graduate second level, course of Science and Diagnostic for Conservation of Art works-University of Bari
2012-2015: Teaching microbiology for graduate first level, course of Sciences and Technologies for Art works-University of Bari
2003-2006: Teaching microbiology for graduate level, course of Microbiology at the Faculty of Biology-University of Bari
2004-2006: Teaching Genetics of Microorganisms at the school in Microbiology and Virology-University of Bari

Synopsis of research activities
Since 2013 my research activity has mainly been focused on the molecular characterization of non-cultivable bacteria of environmental origin as they represent an important and poorly known fraction of the resident bacterial community.
Part of my activity has then been dedicated to the optimization of metagenome extraction from environmental bacterial communities, amplification of bacterial 16S rDNA by eubacterial universal primers, resolution of 16S rDNA fragments based on their different nucleotide sequences by denaturing gel gradient electrophoresis-DGGE and the characterization of bacterial taxonomic group by sequence analysis. In particular my studies were from insects (e.g Rhynchophorus ferrugineus), poriferan community (e.g Hymeniacidon perlevis), undergrownd water and molluscs. I have been involved in studies on antimicrobial resistance genes and associated genetic elements.

Post-doctoral research
University of Bari, Bari, Italy Supervisor: Carlo Pazzani, Ph.D
Research title: identification and characterisation of mobile genetic elements in multidrug resistant strains of Vibrio cholerae
V. cholerae O1 isolates were characterized for their antimicrobial resistance by Minimal Inibent Concentration (MICs) and disc diffusion methods. Conjugation experiments were performed to determine the transferability of resistance genes. The genetic elements, conjugative IncC plasmids and harboured class I integrons, were further characterized at the molecular and genetic level. These data were the object of papers published in peer reviewed journals.

Post-doctoral research
MRC, Human Genetics Unit, Edimburgh, UK Supervisor: Prof. Howard Cooke
Research title: kinetochore chromatin assembly by the histone H3 variant CENP-A in human fibroblasts
The proper segregation of chromosomes during mitotic and meiotic cell division depends on the correct assembly of the centromere and in particular of the

kinetochore where spindle microtubules are attached. Centromere are not merely specified by DNA sequences: they exhibit properties at an epigenetic locus and behaves as a self-replicating protein complex that resides on centromeric DNA but it is not determined by it. The CENP-A, a variant of histone H3, is the primary determinant of centromere identity specifying where on a chromosome the kinetochore is formed. The research I undertook in the laboratory of Prof. Howard Cooke was based on the construction of artificial chromosomes that could correctly segregate during division in host cells. An aim of my research was to determine if CENP-A was sufficient for kinetochore formation and it could drive the redistribution of various associated centromere-kinetochore components. We created a human fibroblast cell line containing an ectopic site for exogenous CENP-A recruitment. By immunofluorescence experiments we could demonstrate the recruitment of the exogenous CENP-A and of other centromeric proteins (CENP-C, CENP-E) involved in the formation an active kinetochore.

Undergraduate and doctoral research
University of Bari, Bari, Italy Supervisor: Carlo Pazzani, Ph.D
Research title: molecular typing and epidemiology of Vibrio cholerae strains isolated in East Africa.
East Africa is still an endemic region for Vibrio cholerae O1, the etiological agent of cholera. In collaboration with the NGO AMREF, we had the possibility to get a unique collection of Vibrio cholerae O1 strains isolated from Somalia, Ethiopia, Sudan, Tanzania and Kenya during the 1998-99 outbreaks. In addition we analysed isolates from the 1985 epidemic in Somalia. The main aims of my undergraduate and doctoral research were:
1) to optimize a new method for bacterial molecular typing
2) to study epidemiology of V. cholerae in East Africa by molecular typing analysis
I perfomed molecular typing of isolates by purification and amplification of genomic DNA. I used primers obtained from Enterobacterial Repetitive Intergenic Consensus (ERIC1, ERIC2), Vibrio Cholerae Repeats (VCR1, VCR2), cholera toxin phage (ATX1, ATX2). I used each primer at low stringency to amplify genomic DNA and I compared electrophoretic profiles obtained from each isolate. Typing groups were obtained from the combination of profiles from each primer. The method was named Amplified Polimorphic DNA (APD). APD groups of V. cholerae O1 strains isolated from the Horn of Africa during epidemics in 1998-99 showed two major clones different from those responsible of 1985 epidemics. The first clone spread in Somalia and Ethiopia; the second one spread in Kenya, Sud Sudan and North Tanzania.

Meetings

FAO-CIHEAM (2017)

The Scientific Consultation and High-Level Meeting on Red Palm Weevil Management

Oral presentation Speaker: Maria Scrascia

Title: The RPW infestation elicits a control-factor repressive environment

Scrascia M., Pazzani C., Valentini F., Oliva M., Russo V., D'Addabbo P., Stallone G., Roberto R., Porcelli F.

XXV Congresso nazionale italiano di entomologia (2016)

Oral presentation

V. Russo, **M. Scrascia**, C. Pazzani, F. Valentini, M. Oliva, P. D' Addabbo, R. Roberto, F. Porcelli

Title: On some Rhynchophorus ferrugineus (Olivier, 1790) ectosymbiotic bacteria found in lumina of female genital organs

XIV Internatinal Symposium on Scale Insects Studies (2016)
Oral presentation Speaker: M. Scrascia

M. Scrascia, C. Pazzani, M. Oliva, V. Russo, R. Roberto, F. Porcelli

Title: Does Unaspis euonymi (Comstock)(Hemiptera: Diaspididae) host Serratia symbiotica (Bacteria: Enterobacteriaceae)?

Peer reviewed papers

Calia C, Pazzani C, Oliva M, **Scrascia M**, Lovreglio P, Capolono C, Dionisi AM, Chiarelli A, Monno R. Carbapenemases producing Klebsiella pneumoniae in hospitals of two regions of Southern Italy. APMIS. 2017. 125(5):491-498 doi: 10.1111/apm.12666

Oliva M, Monno R, D'Addabbo P, Pesole G, Dionisi AM, **Scrascia M**, Chiara M, Horner DS, Manzari C, Luzzi I, Calia C, D'Erchia AM, Pazzani C*. A novel group of IncQ1 plasmids conferring multidrug resistance. Plasmid. 2017. 1;89:22-26. doi: 10.1016/j.plasmid.2016.11.005. [Epub ahead of print]

M. Scrascia, C. Pazzani, F. Valentini, M. Oliva, V. Russo, P. D'Addabbo and F. Porcelli (2016)
Identification of pigmented Serratia marcescens symbiotically associated with Rhynchophorus ferrugineus Olivier (Coleoptera: Curculionidae). Microbiology Open doi: 10.1002/mbo3.377

N. Pugliese, F. Maimone, **M. Scrascia**, S. Materu, C. Pazzani (2009) SXT-related integrating conjugative element and IncC plasmids in Vibrio cholerae O1 strains in Eastern Africa. Journal of Antimicrobial Chemotherapy 63(3): 438-42

M. Scrascia, N. Pugliese, F. Maimone, K. A. Mohamud, I. A. Ali, P. A.D. Grimont, C. Pazzani (2009) Cholera in Ethiopia in the 1990s: Epidemiologic Patterns, Clonal Analysis and Antimicrobial Resistance. International Journal of Medical Microbiology 299 (5): 367-72

M. Scrascia, N. Pugliese, F. Maimone, K. A Mohamud, P. A Grimont, S. F Materu, C. Pazzani. 2009 Clonal relationship among Vibrio cholerae O1 El Tor strains isolated in Somalia. International Journal of Medical Microbiology 299 (3): 203-7

M. Scrascia, F. Maimone, K.A. Mohamud, S. F. Materu, F. Grimont, P. A. D. Grimont and C. Pazzani. 2006 Clonal Relationship among Vibrio cholerae O1 El Tor Strains Causing the Largest Cholera Epidemic in Kenya in the Late 1990s. Journal of Clinical Microbiology 44 (9): 3401-4

C. Pazzani*, **M. Scrascia***, A.M. Dionisi, F. Maimone, I. Luzzi. 2006
Molecular Epidemiology and Origin of Cholera Reemergence in Italy and Albania in the 1990s. Research in Microbiology 157 (6): 508-12
(*These two authors contributed equally to the study)

M.Scrascia, M.Forcillo, F.Maimone, C.Pazzani. 2003
Susceptibility to rifaximin of Vibrio cholerae strains from different geographical areas.
Journal of Antimicrobial Chemotherapy 52 (2): 303-5