***Curriculum vitae* di KATIA AQUILANO**

Katia Aquilano è nata a Roma il 01/08/1974

1999: Laurea in Scienze Biologiche conseguita presso l'Università di Roma "Tor Vergata";
2003: Dottorato di Ricerca in "Biologia Cellulare e Molecolare" presso l'Università di Roma "Tor Vergata";
2003-2006: Assegnista di Ricerca (SSD BIO/10) presso il Dipartimento di Biologia, Università di Roma "Tor Vergata";
2006-2007: Ricercatore Junior presso l'IRCCS San Raffaele "La Pisana" di Roma;
2007-2008: Ricercatore a tempo determinato all'Istituto di Biochimica dell'Università di Urbino "Carlo Bò";
2009-2012: Ricercatore non confermato (SSD MED/49) presso il Dipartimento di Biologia dell'Università di Roma "Tor Vergata".
2012: Ricercatore confermato (SSD MED/49) presso il Dipartimento di Biologia dell'Università di Roma "Tor Vergata".

ATTIVITA' SCIENTIFICA
Ha svolto attività di ricerca nel campo dello stress ossidativo e nitrosativo, in particolare del loro coinvolgimento in patologie umane quali il cancro, la neurodegenerazione, le malattie metaboliche e l'influenza. Ha inoltre studiato il ruolo di alcune molecole naturali derivanti dalla dieta (polifenoli e composti organosulfurici) nella modulazione dello stato redox intracellulare ed i loro effetti sulla proliferazione e il metabolismo cellulare, il differenziamento e l'apoptosi. Ha identificato il ruolo dell'ossido nitrico, del superossido e del glutatione nella modulazione di vie di segnalazione che culminano nella morte cellulare in modelli in vitro di cancro e neurodegenerazione. Ha chiarito il ruolo della superossido dismutasi nel mantenimento dell'integrità del citoscheletro e del metabolismo mitocondriale. Più recentemente ha dimostrato che SIRT1 e PGC-1alpha sono proteine a localizzazione mitocondriale dove all'interno della matrice interagiscono con il DNA mitocondriale regolandone la sua trascrizione. Infine in modelli murini ha analizzato gli effetti benefici del digiuno mettendo in luce il ruolo essenziale dell'alterazione dei livelli di glutatione nel favorire l'espressione di enzimi antiossidanti e proteine implicate nella biogenesi mitocondriale.
Ha pubblicato i risultati ottenuti su riviste scientifiche peer-reviewed e su atti di convegno internazionali.

ATTIVITA' DIDATTICA
2011- ad oggi: *Nutraceutici e Salute Umana* nel Corso di Laurea Magistrale in Biologia ed Evoluzione Umana dell'Università di Roma "Tor Vergata";
2011- ad oggi: *Scienze Tecniche Dietetiche Applicate* nel Corso di Laurea di Scienze della Nutrizione Umana dell'Università di Roma "Tor Vergata".

ALTRE ATTIVITA'
Attività di revisore per numerose riviste scientifiche internazionali tra cui *Free Radical Research*, *Food Chemistry*, *Journal of Neuroinflammation* e *Neurochemistry International*.
Lead Guest Editor per la rivista *International Journal of Cell Biology*.

ELENCO DELLE PUBBLICAZIONI

[1] Ciriolo MR, **Aquilano K**, De Martino A, Carrì MT, Rotilio G. (2001) Differential role of superoxide and glutathione in GSNO-mediated apoptosis: a rationale for mild forms of

familial amyotrophic lateral sclerosis associated with less active Cu,Zn superoxide dismutase mutants *J. Neurochem.* **77**: 1433-1443.

[2] Nencioni L, Iuvara A, **Aquilano K**, Ciriolo MR, Cozzolino F, Rotilio G, Palamara AT, Garaci E. (2003) Influenza A virus replication is dependent on an antioxidant pathway that involves GSH and Bcl-2. *FASEB J.* **17**: 758-760.

[3] **Aquilano K**, Rotilio G, Ciriolo MR (2003) Proteasome activation and nNOS down-regulation in neuroblastoma cells expressing the G93A Cu,Zn SOD mutant involved in familial ALS. *J. Neurochem.* **85**: 1324-1335.

[4] Filomeni G, **Aquilano K,** Rotilio G, Ciriolo MR. (2003). Reactive oxygen species-dependent c-Jun NH2-terminal kinase/c-Jun signaling cascade mediates neuroblastoma cell death induced by diallyl disulfide. *Cancer Res.* **63**: 5940-5949.

[5] Rotilio G**, Aquilano K,** Ciriolo MR. (2003) Interplay of Cu,Zn superoxide dismutase and nitric oxide synthase in neurodegenerative processes. *IUBMB Life* **55**: 629-634.

[6] Filomeni G, **Aquilano K**, Rotilio G, Ciriolo MR. (2005) Anti-apoptotic response to induced GSH depletion: involvement of heat shock proteins and NF-kB activation. *Antioxid. Redox Signal.* **7**: 446-455.

[7] Palamara AT, Nencioni L, **Aquilano K,** De Chiara G, Hernandez L, Cozzolino F, Ciriolo MR, Garaci E. (2005) Inhibition of influenza A virus replication by resveratrol. *J. Infect. Dis.* **191:** 1719-1729.

[8] Cerchiaro G, **Aquilano K,** Filomeni G, Rotilio G, Ciriolo MR, Ferreira AM. (2005) Isatin-Schiff base copper(II) complexes and their influence on cellular viability. *J. Inorg. Biochem.* **99**: 1433-1440.

[9] Filomeni G, **Aquilano K,** Civitareale P, Rotilio G, Ciriolo MR. (2005) Activation of c-Jun-N-terminal kinase is required for apoptosis triggered by glutathione disulfide in neuroblastoma cells. *Free Radic. Biol. Med.* **39**: 345-354.

[10] Filomeni G, **Aquilano K,** Rotilio G, Ciriolo MR (2005) Glutathione-related systems and modulation of extracellular signal-regulated kinases are involved in the resistance of AGS adenocarcinoma gastric cells to diallyl disulfide-induced apoptosis. *Cancer Res.* **65**: 11735-11742.

[11] De Martino A, Filomeni G, **Aquilano K**, Ciriolo MR, Rotilio G. (2006) Effects of water garlic extracts on cell cycle and viability of HepG2 hepatoma cells. *J. Nutr. Biochem.* **17**, 742-749.

[12] **Aquilano K**, Vigilanza P, Rotilio G, Ciriolo MR. (2006) Mitochondrial damage due to SOD1 deficiency in SH-SY5Y neuroblastoma cells: a rationale for the redundancy of SOD1. *FASEB J*. **20**: 1683-1685.

[13] **Aquilano K,** Filomeni G, Di Renzo L, Di Vito M, Di Stefano C, Salimei PS, Ciriolo MR, Marfè, G. (2007) Reactive oxygen and nitrogen species are involved in sorbitol-induced apoptosis of human erithroleukaemia cells K562. *Free Radic. Res.* **41**: 452-460.

[14] **Aquilano K,** Filomeni G, Baldelli S, Piccirillo S, Rotilio G, Ciriolo MR. (2007) Neuronal nitric oxide synthase protects neuroblastoma cells from oxidative stress mediated by garlic derivatives. *J. Neurochem.* **101**: 1327-1337.

[15] **Aquilano K,** Vigilanza P, Rotilio G, Ciriolo MR. (2008) Transient cytoskeletal alterations after SOD1 depletion in neuroblastoma cells. *Cell. Mol. Life Sci.* **65**: 991-1004.

[16] **Aquilano K,** Baldelli S, Rotilio G, Ciriolo MR. (2008) Glutathione and Copper,Zinc superoxide dismutase are modulated by over-expression of neuronal nitric oxide synthase. *Int. J. Biochem. Cell Biol.* **40**: 2660-2670.

[17] **Aquilano K,** Baldelli S, Rotilio G, Ciriolo MR. (2008) Role of nitric oxide synthases in Parkinson's disease: a review on the antioxidant and anti-inflammatory activity of polyphenols. *Neurochem. Res*. **33**: 2416-2426.

[18] **Aquilano K**, Baldelli S, Rotilio G, Ciriolo MR (2009) Trans-resveratrol inhibits H_2O_2-induced adenocarcinoma gastric cells proliferation via inactivation of MEK1/2-ERK1/2-c-Jun signalling axis. *Biochem. Pharmacol.* **77**: 337-347.

[19] Nencioni L, De Chiara G, Sgarbanti R, Amatore D, **Aquilano K,** Marcocci ME, Serafino A, Torcia M, Cozzolino F, Ciriolo MR, Garaci E, Palamara AT. (2009) Bcl-2 expression and p38MAPK activity in cells infected with influenza A virus: impact on virally induced apoptosis and viral replication. *J. Biol. Chem.* **284**: 16004-16015.

[20] Radogna F, Paternoster L, De Nicola M, Cerella C, Ammendola S, Bedini A, Tarzia G, **Aquilano K,** Ciriolo M, Ghibelli L. (2009) Rapid and transient stimulation of intracellular reactive oxygen species by melatonin in normal and tumor leukocytes. *Toxicol. Appl Pharm.* **239**: 37-45.

[21] **Aquilano K**, Vigilanza P, Filomeni G, Rotilio G, Ciriolo MR (2010) Tau dephosphorylation and microfilaments disruption are upstream events of the anti-proliferative effects of DADS in SH-SY5Y cells. *J. Cell. Mol. Med.* **14**: 564-577.

[22] **Aquilano K,** Vigilanza P, Baldelli S, Pagliei B, Rotilio G, Ciriolo MR (2010) Peroxisome proliferator-activated receptor gamma co-activator 1alpha (PGC-1alpha) and sirtuin 1 (SIRT1) reside in mitochondria: possible direct function in mitochondrial biogenesis. *J. Biol. Chem.* **285**: 21590-21599.

[23] **Aquilano K,** Baldelli S, Rotilio G, Ciriolo MR (2010) Neuronal nitric oxide synthase interacts with Sp1 through the PDZ domain inhibiting Sp1-mediated copper-zinc superoxide dismutase expression. *Int. J. Biochem. Cell Biol.* **43**:163-169.

[24] **Aquilano K,** Baldelli S, Cardaci S, Rotilio G, Ciriolo MR (2011) Nitric oxide is the primary mediator of cytotoxicity induced by GSH depletion in neuronal cells. *J. Cell Sci.* **124**: 1043-1054.

[25] Vigilanza P, **Aquilano K**, Rotilio G, Ciriolo MR (2011) Modulation of intracellular glutathione affects adipogenesis in 3T3-L1 cells. *J. Cell. Physiol.* **226**: 2016-2420.

[26] **Aquilano K,** Baldelli S, Ciriolo MR. (2011) Glutathione is a crucial guardian of protein integrity in the brain upon nitric oxide imbalance. *Comm. Integr. Biol.* **4:** 477-479.

[27] Lettieri Barbato D, Baldelli S, Pagliei B, **Aquilano K***, Ciriolo MR. (2012) Caloric Restriction and the Nutrient-Sensing PGC-1α in Mitochondrial Homeostasis: New Perspectives in Neurodegeneration. *Int. J. Cell Biol.* **2012**:759583. *****Corresponding author.

[28] **Aquilano K**, Baldelli S, Pagliei B, Ciriolo MR. (2012) Extranuclear localization of SIRT1 and PGC-1α: an insight into possible roles in diseases associated with mitochondrial dysfunction. *Curr. Mol. Med.* **13**:140-154.

[29] **Aquilano K**, Baldelli S, Pagliei B, Cannata SM, Rotilio G, Ciriolo MR. (2012) p53 Orchestrates the PGC-1α-Mediated Antioxidant Response Upon Mild Redox and Metabolic Imbalance. *Antioxid. Redox Signal.* **18**: 386-399.

[30] Pagliei B*, **Aquilano K***, Baldelli S, Cannata SM, Rotilio G, Ciriolo MR. (2012) Garlic-derived diallyl disulfide modulates peroxisome proliferator activated receptor gamma co-activator 1 alpha in neuroblastoma cells. *Biochem. Pharmacol.* **85**: 335-344. *Uguale contributo.

[31] Baldelli S, **Aquilano K***, Ciriolo MR. (2013) Punctum on two different transcription factors regulated by PGC-1α: Nuclear factor erythroid-derived 2-like 2 and nuclear respiratory factor 2. Biochim Biophys Acta. doi:pii: S0304-4165(13)00134-7. 10.1016/j.bbagen.2013.04.006. *****Corresponding author.

KATIA AQUILANO – *Curriculum vitae*

Katia Aquilano was born in Rome on August 1st 1974.

1999: Biological Sciences graduated at University of Rome Tor Vergata (110/110 cum laude);
2003: PhD degree in Molecular and Cellular Biology;
2003-2006: Post-doctoral position in Biochemistry at the Department of Biology-University of Rome Tor Vergata.
2006-2007: Junior Researcher at IRCCS San Raffaele (Rome)
2007-2008: Researcher position at the Biochemistry Institute-University of Urbino "Carlo Bò".
2009-: Researcher at the Dept. of Biology-University of Rome Tor Vergata.

SCIENTIFIC ACTIVITY

She performed research in the field of involvement of oxidative/nitrosative stress in human diseases such as cancer, neurodegeneration and metabolic disorders. She identified the role of nitric oxide, superoxide and glutathione in the signaling processes mediating cell death in cellular model of cancer, neurodegeneration and cell differentiation. She demonstrated the role of superoxide dismutase in maintaining the integrity of cytoskeleton and mitochondria. She also analysed the protective and antioxidant action of natural molecules such as the polyphenol resveratrol and the organosulfur compounds from garlic. She discovered that SIRT1 and PGC-1a are mitochondrial resident proteins and are localized within the matrix in association with nucleoids. In mice models she discovered that the beneficial effects of fasting rely on the alteration of glutathione levels, which are pivotal in the NO-dependent induction of the expression of antioxidant enzymes and proteins involved in mitochondrial biogenesis.

TEACHING ACTIVITY

2011- : *Nutraceuticals and Human Health* at the Dept. of Biology, University of Rome Tor Vergata;
2011- : *Applied Nutritional Sciences* at the Dept. of Biology, University of Rome Tor Vergata;.

OTHER ACTIVITIES

Reviewer activity for peer-reviewed international Journals (e.g. *Free Radical Research*, *Food Chemistry*, e *Journal of Neuroinflammation, Neurochemistry International*).
Lead Guest Editor for *International Journal of Cell Biology*

LIST OF PUBBLICATIONS

[1] Ciriolo MR, **Aquilano K**, De Martino A, Carrì MT, Rotilio G. (2001) Differential role of superoxide and glutathione in GSNO-mediated apoptosis: a rationale for mild forms of familial amyotrophic lateral sclerosis associated with less active Cu,Zn superoxide dismutase mutants *J. Neurochem.* **77**: 1433-1443.

[2] Nencioni L, Iuvara A, **Aquilano K**, Ciriolo MR, Cozzolino F, Rotilio G, Palamara AT, Garaci E. (2003) Influenza A virus replication is dependent on an antioxidant pathway that involves GSH and Bcl-2. *FASEB J.* **17**: 758-760.

[3] **Aquilano K**, Rotilio G, Ciriolo MR (2003) Proteasome activation and nNOS down-regulation in neuroblastoma cells expressing the G93A Cu,Zn SOD mutant involved in familial ALS. *J. Neurochem.* **85**: 1324-1335.

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