

CURRICULUM VITAE PENNACCHIO ANGELA

PERSONAL INFORMATION

Surname, Name **PENNACCHIO ANGELA**
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Nationality **ITALIAN**

WORK EXPERIENCE

Period (from – to) **FEBRUARY 2022 - PRESENT**
Name of employer **National Research Council of Italy, Institute of Food Sciences (CNR-ISA)**
Type of business or sector **Public Research Institution**
Occupation or position held **Researcher**

Period (from – to) **SEPTEMBER 2021 TO JANUARY 2022**
Name of employer **SMS "Don Salvatore Vitale"**
Type of business or sector **Education and Training**
Occupation or position held **Teacher**

Period (from – to) **NOVEMBER 2020 TO AUGUST 2021**
Name of employer **National Research Council of Italy, Institute of Food Sciences (CNR-ISA)**
Type of business or sector **Public Research Institution**
Occupation or position held **Post-doctoral Researcher - Project DBA.AD005.041 "Progetto di funzionamento ISA" GAE P0000557 (B36C19000060005)**

Period (from – to) **JULY 2018 TO JUNE 2020**
Name of employer **National Research Council of Italy, Institute of Food Sciences (CNR-ISA)**
Type of business or sector **Public Research Institution**
Occupation or position held **Post-doctoral Researcher – Project "H2020 – WATERSPY – G/A n.731778 – High sensitivity portable photonic device for pervasive water quality analysis"**

Period (from – to) **JULY 2016 TO JUNE 2018**
Name of employer **National Research Council of Italy, Institute of Food Sciences (CNR-ISA)**
Type of business or sector **Public Research Institution**
Occupation or position held **Post-doctoral Researcher – European project FP7 KKBE – "MARINE ENVIRONMENTAL IN SITU ASSESSMENT AND MONITORING TOOL BOX" – "MARIABOX"**

Period (from – to) **JULY 2015 TO JUNE 2016**
Name of employer **National Research Council of Italy, Institute of Food Sciences (CNR-ISA)**
Type of business or sector **Public Research Institution**
Occupation or position held **Post-doctoral Researcher – Project "Avanzati sistemi biosensoristici per la diagnosi ed il follow-up della malattia celiaca"**

Period (from – to) **JUNE 2014 TO JUNE 2015**
Name of employer **National Research Council of Italy, Institute of Protein Biochemistry (CNR-IBP)**
Type of business or sector **Public Research Institution**
Occupation or position held **Post-doctoral Researcher – Project "Polifarma – Sistemi polimerici micro e nano particellari per la somministrazione di molecole farmacologicamente attive"**

Period (from – to) **MARCH 2013 TO MARCH 2014**

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| Name of employer | National Research Council of Italy, Institute of Biomolecular Chemistry (CNR-ICB) |
| Type of business or sector | Public Research Institution |
| Occupation or position held | Post-doctoral Researcher – Project “Ricerca e sviluppo di bioregolatori attivi sui meccanismi epigenetici dei processi infiammatori nelle malattie croniche e degenerative – BIAM-EPI” |
| Period (from – to) | MARCH 2010 TO APRIL 2013 |
| Name of employer | National Research Council of Italy, Institute of Protein Biochemistry (CNR-IBP) |
| Type of business or sector | Public Research Institution |
| Occupation or position held | Ph.D. in Advanced Biology funded by Agenzia Spaziale Italiana (ASI), Project n. 1/014/06/0 “From molecules to Man” (MoMa). Thesis title: “New Dehydrogenase/Reductase as Biocatalysts for Stereoselective Reduction of Prochiral Ketones”. |
| Period (from – to) | MAY 2007 TO JUNE 2010 |
| Name of employer | National Research Council of Italy, Institute of Protein Biochemistry (CNR-IBP) |
| Type of business or sector | Public Research Institution |
| Occupation or position held | Postgraduate Fellowship - Research project: “Identification and characterization of dehydrogenase-reductases of practical interest in thermophilic microorganisms” |
| Period (from – to) | MAY 2006 TO MAY 2007 |
| Name of employer | Institute of Protein Biochemistry, CNR, Naples |
| Type of business or sector | Public Research Institution |
| Occupation or position held | Contract for professional collaboration funded by the FIRB 2003, Project N. RBNE034XS “Organo-Metallic Catalysts and enzymes for new biotransformations and optimization of eco-friendly production process” |

EDUCATION

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| Period (from – to) | April 2013 |
| Name and type of organization providing education | University of Naples “Federico II” |
| Title of qualification awarded | Ph.D. in Advanced Biology |
| Period (from – to) | March 2006 |
| Name and type of organization providing education | University of Naples “Federico II” Department of Genetics, and Molecular General Biology |
| Title of qualification awarded | Master’s Degree in Biological Sciences with a specialization in Biomolecular Science |
| Period (from – to) | June 2010 |
| Name and type of organization providing education | University of Naples “Federico II”, Department of Biological Sciences |
| Title of qualification awarded | Advanced course in “Food Hygiene, Nutrition and Wellness |
| Period (from – to) | June 2006 |
| Name and type of organization providing education | Qualification to practice the profession of Biologist |
| Title of qualification awarded | University of Naples “Federico II” |

Research Activities/Projects (main)

Participation in the scientific activities of the project: “WaterSpy - High sensitivity, portable photonic device for pervasive water quality analysis” - European Union’s Horizon 2020 research and innovation programme under grant agreement No 731778.

Participation in the scientific activities of the project: “MARINE environmental in situ Assessment and monitoring tool BOX (MARIABOX)” - Comunità Europea – FP7 (OCEAN 2013.1 OCEAN 2013.2).

Participation in the scientific activities of the project: "Avanzati sistemi biosensoristici per la diagnosi ed il follow-up della malattia celiaca" - CNR - Istituto di Biomembrane e Bioenergetica

Participation in the scientific activities of the project: "Polifarma – Sistemi polimerici micro e nano particellari per la somministrazione di molecole farmacologicamente attive" - PON02_00029_3203241.

Participation in the scientific activities of the project: "Ricerca e sviluppo di bioregolatori attivi sui meccanismi epigenetici dei processi infiammatori nelle malattie croniche e degenerative – BIAM-EPI" - Decreto finanziamento MIUR n. 706/Ric

Participation in the scientific activities of the project: "Organo-Metallic Catalysts and enzymes for new biotransformations and optimization of eco-friendly production process" - FIRB (Fondo per gli Investimenti della Ricerca di Base) grant RBNE034XSW and by the ASI project MoMa n. 1/014/06/0.

Publications

- Emergent Biosensing Technologies Based on Fluorescence Spectroscopy and Surface Plasmon Resonance. Alessandra Camarca, Antonio Varriale, Alessandro Capo, Angela Pennacchio, Alessia Calabrese, Cristina Giannattasio, Carlos Murillo Almuzara, Sabato D'Auria e Maria Staiano. *Sensors (Basel)*. (2021) 29;21(3):906
- Fluorescence polarization assay to detect the presence of traces of ciprofloxacin. Hiyam el Kojok, nada el Darra, Mahmoud Khalil, Alessandro Capo, Angela Pennacchio, Maria Staiano, Alessandra Camarca, Sabato D'Auria e Antonio Varriale. *Sci Rep.* (2020) Mar 12;10(1):4550
- Spectroscopic Properties of Two 5'-(4-Dimethylamino)Azobenzene Conjugated G-Quadruplex Forming Oligonucleotides. Concetta Imperatore, Antonio Varriale, Elisa Riviaccio, Angela Pennacchio, Maria Staiano, Sabato D'Auria, Marcello Casertano, Carlo Altucci, Mohammadhassan Valadan, Manjot Singh, Marialuisa Menna e Michela Varra. *Int J Mol Sci.* (2020) 26;21(19):7103
- The porcine odorant-binding protein as molecular probe for benzene detection. Capo A, Pennacchio A, Varriale A, D'Auria S, Staiano M. *PLoS One* (2018) 1-24
- Cloning and bacterial expression systems for recombinant human heparanase production: Substrate specificity investigation by docking of a putative heparanase substrate. Pennacchio A, Capo A, Caira S, Tramice A, Varriale A, Staiano M, D'Auria S. *Biotechnology and Applied Biochemistry* (2017) 1-10
- Proteins as advanced tools for designing innovative optical biosensors. Maria Staiano, Angela Pennacchio, Antonio Varriale, Alessandro Capo, Adelia Majoli, Clotilde Capacchione and Sabato D'Auria. *Enzymes as Biosensors Methods in Enzymology Volume 589*, (2017) Pages 2-511
- On the possibility of ephedrine detection: A Time-Resolved Fluorescence Resonance Energy Transfer (FRET)-based approach. Antonio Varriale, Vincenzo Manuel Marzullo, Stefano di Giovanni, Andrea Scala, Alessandro Capo, Adelia Majoli, Angela Pennacchio, Maria Staiano and Sabato D'Auria. *Analytical and Bioanalytical Chemistry* (2016) 1-8
- The Fluorescent Monomeric Protein Kusabira Orange. Pressure Effect on its Structure and Stability. L. Picart-Palmade, D. Chevalier-Lucia, R. Lange, A. Facchiano, A. Pennacchio, M. Staiano, and S. D'Auria. *Journal of Biochemistry and Biophysics Reports* (2016) 7:138-143
- A Fluorescence Polarization Assay To Detect Steroid Hormone Traces in Milk. Antonio Varriale, Anna Pennacchio, Gabriella Pinto, Giorgia Oliviero, Stefano D'Errico, Adelia Majoli, Andrea Scala, Alessandro Capo, Angela Pennacchio, Stefano Di Giovanni, Maria Staiano, and Sabato D'Auria. *J Agric Food Chem* (2015) 63(41): 9159–9164

- Enlarging the substrate portfolio of the thermophilic esterase EST2 from *Alicyclobacillus acidocaldarius*. Pennacchio A, Mandrich L, Manco G, Trincone A. *Extremophiles* (2015) 19(5):1001-1011
- Hooked on α -D-galactosidases: from biomedicine to enzymatic synthesis. Bakunina IY, Balabanova LA, Pennacchio A, Trincone A. *Critical Reviews in Biotechnology* (2014) 14:1-13
- Synthesis of cinnamyl alcohol from cinnamaldehyde with *Bacillus stearothermophilus* alcohol dehydrogenase as the isolated enzyme and in recombinant *E. coli* cells. Pennacchio A, Rossi M, Raia CA. *Applied Biochemistry and Biotechnology* (2013) 170(6):1482-90
- Biochemical and structural characterization of recombinant short-chain NAD(H)-dependent dehydrogenase/reductase from *Sulfolobus acidocaldarius* highly enantioselective on diaryl diketone benzyl. Pennacchio A, Sannino V, Sorrentino G, Rossi M, Raia CA, Esposito L. *Applied Microbiology and Biotechnology* (2013) 97(9):3949-64
- Asymmetric Reduction of α -Keto Esters with *Thermus thermophilus* NADH-Dependent Carbonyl Reductase using Glucose Dehydrogenase and Alcohol Dehydrogenase for Cofactor Regeneration. Pennacchio A, Giordano A, Rossi M, Raia CA. *European Journal of Organic Chemistry* (2011) 23:4361-4366
- Biochemical characterization of a recombinant short-chain NAD(H)-dependent dehydrogenase/reductase from *Sulfolobus Acidocaldarius*. Pennacchio A, Giordano A, Pucci B, Rossi M, Raia CA. *Extremophiles* (2010) 14:193-204
- Insight into the Stereospecificity of Short-Chain *Thermus thermophilus* Alcohol Dehydrogenase Showing pro-S Hydride Transfer and Prelog Enantioselectivity. Pennacchio A, Giordano A, Esposito L, Langella E, Rossi M, CA Raia. *Proteins and Peptide Letters* (2009) 117:437-43
- Role of Tryptophan 95 in substrate specificity and structural stability of *Sulfolobus solfataricus* alcohol dehydrogenase. Pennacchio A, Esposito L, Zagari A, Rossi M, Raia CA. *Extremophiles* (2009) 13:751-761
- Chiral aromatic alcohols production by thermostable NADH-dependent carbonyl reductase from *Thermus thermophilus*. Pennacchio A, Pucci B, Secundo F, La Cara F, Rossi M, Raia CA. *Chemical Engineering Transactions* (2008) 14:359-364. G. Marino, E. Bardone, A. Viglia Eds.
- Purification and Characterization of a Novel Recombinant Highly Enantioselective Short-Chain NAD(H)-Dependent Alcohol Dehydrogenase from *Thermus thermophilus*. Pennacchio A, Pucci B, Secundo F, La Cara F, Rossi M, Raia CA. *Applied Environmental Microbiology* (2008) 74:3949-3958

Participations at congresses

- Angela Pennacchio. Oral Communication: Human Heparanase structure and its role in cancer progression. European Biotech Week Part of Global Biotech Week 2016 Teramo, 26 Settembre 2016, Italia
- Angela Pennacchio. Oral Communication: Recombinant Human Heparanase: fluorescent Assay design. Institute of Food Sciences Avellino, 11 Maggio 2016, Italia
- Angela Pennacchio, Mosè Rossi, and Carlo A. Raia. Oral Communication: Practical synthesis of cinnamyl alcohol from cinnamaldehyde with *B. stearothermophilus* alcohol dehydrogenase as isolated enzyme and in recombinant *E. coli* cells. XI National Biotechnology Congress, Varese, 27-29 Giugno 2012, P. W10

- Angela Pennacchio, Assunta Giordano, Mosè Rossi, Carlo A. Raia. Asymmetric reduction of α -keto esters with thermophilic NADH-dependent carbonyl reductase. International Conference on Enzyme Science and Technology (ICEST), 31 Ottobre – 4 Novembre 2011, Kusadasi (Turkey), Abstr. PP 64
- Angela Pennacchio, Mosè Rossi, and Carlo A. Raia. A recombinant short-chain NAD(H) dependent dehydrogenase/reductase from *Sulfolobus acidocaldarius* highly enantioselective on diaryl diketone benzil. Biotrans 2011, 2-6 Ottobre, 2011, Giardini Naxos (ME) Sicilia, Abstr. PC 152
- Angela Pennacchio, Assunta Giordano, Mosè Rossi, and Carlo A. Raia. Asymmetric Reduction of alfa-Keto Esters with *Thermus thermophilus* NADH-Dependent Carbonyl Reductase using Glucose Dehydrogenase and Alcohol Dehydrogenase for Cofactor Regeneration. Biotrans 2011, 2-6 Ottobre 2011, Giardini Naxos (ME) Sicilia, Abstr. PC 153
- Angela Pennacchio, A. Giordano, M. Rossi, and C. A. Raia. Effective synthesis of methyl (R)-mandelate by asymmetric reduction with a thermophilic NADH- dependent alcohol dehydrogenase. Proceedings of 14th International Biotechnology Symposium and Exhibition, IBS 2010, 14-18 Settembre 2010, Rimini – Italy
- Angela Pennacchio, Assunta Giordano, Mosè Rossi, and Carlo A. Raia. Asymmetric Organic Synthesis by Thermostable NADH-Dependent Dehydrogenase/Reductase from *Thermus thermophilus*. Biotrans 2009, 5-9 Luglio 2009, Berne, CH, Abstr. nr 367
- Angela Pennacchio and Carlo A. Raia. New Alcohol dehydrogenases as Biocatalysts for Synthesis of Chiral Drug Substances. First Joint IGB-TIGEM-IBP Retreat 10-12 Giugno 2009, Roccaraso (AQ), Italia
- Angela Pennacchio, Biagio Pucci, Francesco La Cara, Immacolata Castellano, Michela Vittorini, Francesco Secundo, Mosè Rossi, and Carlo A. Raia. Enantioselective Synthesis by Thermostable NADH-Dependent Dehydrogenase/Reductase from *Thermus thermophilus*. 16th International Symposium on Homogeneous Catalysis 8-11 Giugno 2008, Firenze (Napoli)
- Angela Pennacchio, Biagio Pucci, Francesco Secundo, Francesco La Cara, Mosè Rossi, and Carlo A. Raia. Chiral aromatic alcohols production by thermostable NADH-dependent carbonyl reductase from *Thermus thermophilus*. Industrial Biotechnology International Conference 6-11 Luglio 2008, Napoli, Italia
- Angela Pennacchio and Carlo A. Raia. Comunicazione Orale: Characterization of a dehydrogenase/reductase from *Thermus thermophilus*. Istituto di Biochimica delle proteine 25 Gennaio 2008, Napoli
- Angela Pennacchio, A. Di Salle, R. Pellicchia, M. Rossi and C. A. Raia. Probing the Determinants of *Sulfolobus solfataricus* Alcohol dehydrogenase stereospecificity. Proteine 2006, Novara, 1-3 Giugno 2006, Atti, P. 59, p. 122

Date,

Main publications

- Cloning and bacterial expression systems for recombinant human heparanase production: Substrate specificity investigation by docking of a putative heparanase substrate. Pennacchio A, Capo A, Caira S, Tramice A, Varriale A, Staiano M, D'Auria S. *Biotechnology and Applied Biochemistry* (2017) 1-10
- Spectroscopic Properties of Two 5'-(4-Dimethylamino)Azobenzene Conjugated G-Quadruplex Forming Oligonucleotides. Concetta Imperatore, Antonio Varriale, Elisa Riviaccio, Angela Pennacchio, Maria Staiano, Sabato D'Auria, Marcello Casertano, Carlo Altucci, Mohammadhassan Valadan, Manjot Singh, Marialuisa Menna e Michela Varra. *Int J Mol Sci.* (2020) 26;21(19):7103
- Fluorescence polarization assay to detect the presence of traces of ciprofloxacin. Hiyam el Kojok, nada el Darra, Mahmoud Khalil, Alessandro Capo, Angela Pennacchio, Maria Staiano, Alessandra Camarca, Sabato D'Auria e Antonio Varriale. *Sci Rep.* (2020) Mar 12;10(1):4550
- Purification and Characterization of a Novel Recombinant Highly Enantioselective Short-Chain NAD(H)-Dependent Alcohol Dehydrogenase from *Thermus thermophilus*. Pennacchio A, Pucci B, Secundo F, La Cara F, Rossi M, Raia CA. *Applied Environmental Microbiology* (2008) 74:3949-3958
- Role of Tryptophan 95 in substrate specificity and structural stability of *Sulfolobus solfataricus* alcohol dehydrogenase. Pennacchio A, Esposito L, Zagari A, Rossi M, Raia CA. *Extremophiles* (2009) 13:751-761
- Insight into the Stereospecificity of Short-Chain *Thermus thermophilus* Alcohol Dehydrogenase Showing pro-S Hydride Transfer and Prelog Enantioselectivity. Pennacchio A, Giordano A, Esposito L, Langella E, Rossi M, CA Raia. *Proteins and Peptide Letters* (2009) 1 17:437-43
- Biochemical characterization of a recombinant short-chain NAD(H)-dependent dehydrogenase/reductase from *Sulfolobus Acidocaldarius*. Pennacchio A, Giordano A, Pucci B, Rossi M, Raia CA. *Extremophiles* (2010) 14:193-204