

BIOGRAPHICAL SKETCH

NAME: Antonio Inforzato

eRA COMMONS USERNAME: N/A

POSITION TITLE: Associate Professor of Biochemistry

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Naples Federico II, Naples (IT)	MSc	10/2001	Chemistry
University of Rome Tor Vergata, Rome (IT)	PhD	10/2006	Immunology
University of Manchester, Manchester (UK)	Postdoctoral	09/2009	Biochemistry and Biophysics
Humanitas University, Rozzano (IT)	Advanced training	10/2018	Clinical Epidemiology

A. Personal Statement

I am an Associate Professor of Biochemistry (<https://www.hunimed.eu/member/antonio-inforzato/>) with a research focus on the interplay between innate immunity and the extracellular matrix in opportunistic infections and immune-related degenerative diseases. My scientific background is rooted in biochemistry and immunology and complemented by specialized expertise in protein science and biophysics. In addition, I received training in animal experimentation and clinical epidemiology, which has significantly shaped my investigative approach. I deem this is multidisciplinary, in that it encompasses methodologies and technologies from a variety of domains (structural biology, genetics, immunology, microbiology, and cell biology) and translational, in that it integrates varying dimensions of research, including molecular sciences, *in vivo* disease modeling and patient-centered clinical studies. In recent years, I have developed a strong interest in opportunistic infections of the musculoskeletal system with major regard to bacterial osteomyelitis. This current application builds on the previous work of my team in this field that has been funded by Fondazione Beppe e Nuccy Angiolini (FBNA), a not-for-profit organization that fosters translational research into bone and joint pathophysiology (<https://www.fondazionebeppeenuccyangioli.it/>).

Ongoing and recently completed projects that I would like to highlight include:

1. Project title: *Bone pathophysiology: from mechanisms to application*
Position on the project: co-Investigator
Amount funded: € 360,000.00
Funding body: FBNA
Duration: Jan 2025 – Dec 2027
2. Project title: *Diagnostic and therapeutic potential of the long pentraxin PTX3 in bacterial infections of the bone*
Position on the project: PI
Amount funded: € 360,000.00
Funding body: FBNA
Duration: Jan 2022 – Dec 2024
3. Project title: *Role of the long pentraxin PTX3 in osteomyelitis*
Position on the project: PI
Amount funded: € 360,000.00
Funding body: FBNA
Duration: Jan 2019 – Dec 2021

Also, I like to pinpoint a selection of scientific articles that I deem of relevance to the current application:

1. Granata V, Strina D, Possetti V, Leone R, Valentino S, Chiappetta K, Loppini M, Mantovani A, Bottazzi B, Asselta R, Sobacchi C, **Inforzato A** (2024) Interleukin-1 β Polymorphisms Are Genetic Markers of Susceptibility to Periprosthetic Joint Infection in Total Hip and Knee Arthroplasty. *Genes* 15: 596
2. Granata V, Strina D, Schiavone ML, Bottazzi B, Mantovani A, **Inforzato A**, Sobacchi C (2023) Genetic Deficiency of the Long Pentraxin 3 Affects Osteogenesis and Osteoclastogenesis in Homeostatic and Inflammatory Conditions. *Int. J. Mol. Sci.* 24:16648.
3. Loppini M, Di Maio M, Avigni R, Leone R, **Inforzato A**, Grappiolo G, Mantovani A, Bottazzi B (2023) Long Pentraxin 3 as a New Biomarker for Diagnosis of Hip and Knee Periprosthetic Joint Infections. *J Clin Med.* 12(3):1055
4. Granata V, Possetti V, Parente R, Bottazzi B, **Inforzato A**, Sobacchi C (2022) The osteoblast secretome in *Staphylococcus aureus* osteomyelitis. *Front Immunol.* 13:1048505
5. Parente R, Possetti V, Schiavone ML, Campodoni E, Menale C, Loppini M, Doni A, Bottazzi B, Mantovani A, Sandri M, Tampieri A, Sobacchi C, **Inforzato A**. (2021) 3D Cocultures of Osteoblasts and *Staphylococcus aureus* on Biomimetic Bone Scaffolds as a Tool to Investigate the Host–Pathogen Interface in Osteomyelitis. *Pathogens* 10:837
6. Parente R, Sobacchi C, Bottazzi B, Mantovani A, Grčević D, **Inforzato A**. (2019) The Long Pentraxin PTX3 in Bone Homeostasis and Pathology. *Front Immunol.* 10:2628

B. Positions, Scientific Appointments, and Honors

Positions and Scientific Appointments

2023 – Present	Head of Unit. Laboratory of Cellular and Humoral Innate Immunity, Humanitas Research Hospital (HRH), Rozzano (IT)
2021 – Present	Associate Professor of Biochemistry (PA, BIO/10). Department of Biomedical Sciences, Humanitas University, Pieve Emanuele (IT)
2021 – Present	Member. International Society for Hyaluronan Sciences (ISHAS)
2018 – 2021	Assistant Professor of Biochemistry (RTD-A, BIO/10). Department of Biomedical Sciences, Humanitas University, Pieve Emanuele (IT)
2016 – 2016	Consultant. Fondazione M. Tettamanti, Milan (IT)
2014 – 2022	Senior Scientist, Laboratory of Immunopharmacology, HRH, Rozzano (IT)
2014 – 2017	Assistant Professor of Healthcare Professions and Medical Technologies (RTD-A, MED/46), Department of Medical Biotechnology and Translational Medicine, University of Milan, Milan (IT)
2014 – 2014	Consultant. Fondazione M. Tettamanti, Milan (IT)
2013 – 2014	Consultant. Istituto Zooprofilattico Sperimentale, Teramo (IT)
2012 – Present	Associate Editor. <i>Frontiers in Immunology</i>
2011 – Present	Member. Italian Society of Immunology, Clinical Immunology and Allergology (SIICA)
2011 – 2014	Researcher. Laboratory of Immunopharmacology, HRH & Humanitas Foundation for Research (FHR), Rozzano (IT)
2010 – 2010	Fellow. INNOCHEM (Innovative Chemokine-based Therapeutic Strategies for Autoimmunity and Chronic Inflammation) Technology Transfer Fellowship, University of Manchester, Manchester (UK)
2009 – 2011	Fellow. SEMM (European School of Molecular Medicine) Structured Postdoctoral Research Fellowship, HRH, Rozzano (IT)
2008 – 2009	Fellow. MRC (Medical Research Council, UK) Postdoctoral Research Associate Fellowship, University of Manchester, Manchester (UK)
2008 – 2009	Member. British Society of Matrix Biology (BSMB)
2007 – 2007	Fellow. FHR International Postdoctoral Research Fellowship, University of Manchester, Manchester (UK)
2006 – 2007	Fellow. FIRC (Fondazione Italiana per la Ricerca sul Cancro) International Postdoctoral Research Fellowship. University of Oxford, Oxford (UK)
2006 – 2007	Consultant. Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., Pomezia (IT)

2004 – Present	Member. Italian Chemical Society
2001 – 2003	Junior Research Scientist, Fiuotecnica S.r.l., Metaponto di Bernalda (IT)

Honors

2011 Travel award. 8th International Conference on Innate Immunity, Crete (GR)

C. Contributions to Science

My research interests are primarily centered on the structural and functional characterization of humoral components of the innate immune system and extracellular matrix, particularly in the context of opportunistic infections and immuno-degenerative diseases, as well as tissue homeostasis. A major focus is on the long pentraxin PTX3 as a model for humoral innate immune responses and extracellular matrix remodeling. In this area, I have led and coordinated several research projects funded by the Italian Ministry of Health (GR-2011-02349539), Italian Ministry of University and Research (20227EB74M), FBNA and pharmaceutical companies (e.g., Sigma-Tau). My major contributions to Science are:

A. Structural characterization of PTX3 and its complexes with complement and extracellular matrix proteins.

1. Shah A, Zhang X, Snee M, Lockhart-Cairns MP, Levy CW, Jowitt TA, Birchenough HL, Dean L, Collins R, Dodd RJ, Roberts ARE, Enghild JJ, Mantovani A, Fontana J, Baldock C, **Inforzato A**, Richter RP, Day AJ (2025) The structural organisation of pentraxin-3 and its interactions with heavy chains of inter- α -inhibitor regulate crosslinking of the hyaluronan matrix. *Matrix Biology* 136:52-68
2. Massimino AM, Colella FE, Bottazzi B, **Inforzato A** (2023) Structural insights into the biological functions of the long pentraxin PTX3. *Front. Immunol.* 14:1274634
3. **Inforzato A**, Riviuccio V, Morreale AP, Bastone A, Salustri A, Scarchilli L, Verdoliva A, Vincenti S, Gallo G, Chiapparino C, Pacello L, Nucera E, Serlupi-Crescenzi O, Day AJ, Bottazzi B, Mantovani A, De Santis R, Salvatori G (2008) Structural characterization of PTX3 disulfide bond network and its multimeric status in cumulus matrix organization. *J. Biol. Chem.* 283(15):10147-61

B. Elucidation of the roles of PTX3 and other matrix-associated molecules (i.e., TSG-6, inter- α -inhibitor, and FGF2) in the remodeling of the hyaluronic acid-rich extracellular matrix during inflammatory processes (e.g., angiogenesis) and inflammation-like physiological events (e.g., ovulation).

1. Baranova NS, **Inforzato A**, Briggs DC, Tilakaratna V, Enghild JJ, Thakar D, Milner CM, Day AJ, Richter RP (2014) Incorporation of pentraxin 3 into hyaluronan matrices is tightly regulated and promotes matrix cross-linking. *J Biol Chem.* 289(44):30481-98
2. Leali D, **Inforzato A**, Ronca R, Bianchi R, Belleri M, Coltrini D, Di Salle E, Sironi M, Norata GD, Bottazzi B, Garlanda C, Day AJ, Presta M (2012) Long pentraxin 3/tumor necrosis factor-stimulated gene-6 interaction: a biological rheostat for fibroblast growth factor 2-mediated angiogenesis. *Arterioscler Thromb Vasc Biol.* 32(3):696-703
3. Ievoli E, Lindstedt R, **Inforzato A**, Camaioni A, Palone F, Day AJ, Mantovani A, Salvatori G, Salustri A (2011) Implication of the oligomeric state of the N-terminal PTX3 domain in cumulus matrix assembly. *Matrix Biol.*
4. **Inforzato A**, Baldock C, Jowitt TA, Holmes DF, Lindstedt R, Marcellini M, Riviuccio V, Briggs DC, Kadler KE, Verdoliva A, Bottazzi B, Mantovani A, Salvatori G, Day AJ (2010) The angiogenic inhibitor long pentraxin PTX3 forms an asymmetric octamer with two binding sites for FGF2. *J. Biol. Chem.* 285(23):17681-92

C. Definition of the molecular mechanisms underlying the functional interplay between pentraxins and the complement system in the immune defense against fungal infections (e.g., invasive aspergillosis) and in the pathogenesis of immunodegenerative disorders (e.g., age-related macular degeneration).

1. Delli re S, Chauvin C, Wong SSW, Gressler M, Possetti V, Parente R, Fontaine T, Kr ger T, Kniemeyer O, Bayry J, Carvalho A, Brakhage AA, **Inforzato A**, Latg  JP, Aimaniananda V (2024) Interplay between host humoral pattern recognition molecules controls undue immune responses against *Aspergillus fumigatus*. *Nat Commun* 15:6966

2. Cunha C, Aversa F, Lacerda JF, Busca A, Kurzai O, Grube M, Löffler J, Maertens JA, Bell AS, **Inforzato A**, Barbati E, Almeida B, Santos e Sousa P, Barbui A, Potenza L, Caira M, Rodrigues F, Salvatori G, Pagano L, Luppi M, Mantovani A, Velardi A, Romani L, Carvalho A (2014) Genetic deficiency of PTX3 and aspergillosis in stem cell transplantation. *N Engl J Med.* 370(5):421-32
3. Stravalaci M, Davi F, Parente R, Gobbi M, Bottazzi B, Mantovani A, Day AJ, Clark SJ, Romano MR, **Inforzato A**. (2020) Control of Complement Activation by the Long Pentraxin PTX3: Implications in Age-Related Macular Degeneration. *Front Pharmacol.* 11:591908
4. Swinkels M, Zhang JH, Tilakaratna V, Black G, Perveen R, McHarg S, **Inforzato A**, Day AJ, Clark SJ (2018) C-reactive protein and pentraxin-3 binding of factor H-like protein 1 differs from complement factor H: implications for retinal inflammation. *Sci Rep.* 8(1): 1643

D. Identification of novel functional roles of soluble innate immune effectors in bone physiology (e.g., bone remodeling) and pathology (e.g., osteomyelitis).

1. Granata V, Strina D, Schiavone ML, Bottazzi B, Mantovani A, **Inforzato A**, Sobacchi C (2023) Genetic Deficiency of the Long Pentraxin 3 Affects Osteogenesis and Osteoclastogenesis in Homeostatic and Inflammatory Conditions. *Int. J. Mol. Sci.* 24:16648.
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3. Grčević D, Sironi M, Valentino S, Deban L, Cvija H, **Inforzato A**, Kovačić N, Katavić V, Kelava T, Kalajzić I, Mantovani A, Bottazzi B. (2018) The long pentraxin PTX3 plays a role in bone turnover and repair. *Front Immunol.* 9:417

Complete List of Published Work in Scopus:

<https://www.scopus.com/authid/detail.uri?authorId=14068801700>