

Anna Casu, MD

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Career Summary

Medical Doctor with clinical and laboratory research experience in Type 1 Diabetes.

Dr. Anna Casu is Associate Investigator at the AdventHealth Translational Research Institute (TRI) at AdventHealth Orlando where she holds the von Weller Family Chair in Type 1 Diabetes Research. She also leads Type 1 Diabetes research at the TRI.

Dr. Casu's career has primarily focused on Type 1 diabetes (T1D) epidemiology, prediction, pathogenic mechanisms, and application of advanced therapies for improving patient quality of life, outcomes and a final cure. Her recent interest is in Type 1 Diabetes in adults and its relationship with obesity and metabolism, and in the role between exocrine and endocrine pancreas in T1D as a co-investigator of the T1D in Acute Pancreatitis NIDDK funded consortium, and local principal investigator for the New Onset Diabetes Study of the Consortium for Pancreatic Cancer and Chronic Pancreatitis (CPDPC).

She has served as Unit Chief – Diabetes and Islet Transplantation at the University of Pittsburgh Medical Center, Italy – ISMETT-IRCCS Mediterranean Institute for Transplantation and Advanced Specialized Therapies, and Clinical Assistant Professor of Medicine, School of Medicine, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, USA based in Palermo, Italy. While at Palermo, she created and led the diabetes unit which manages Type 1, Type 2, and post-transplant diabetic patients in the solid organ transplant programs. She also coordinated the islet transplantation program and directed the laboratory staff and procedures.

Dr. Casu graduated and attended her fellowship training at the University of Cagliari in Sardinia (Italy) where the second highest incidence of Type 1 Diabetes in the world occurs. This resulted in publications regarding the epidemiology of the disease and its preclinical stages. She then accepted a position as a Post-Doctoral Associate, followed by Research Associate, with the Department of Immunogenetics at the University of Pittsburgh. As a Juvenile Diabetes Research Foundation fellow recipient, she worked on identifying new prediction markers as well as a pre-clinical islet xenotransplantation model for the cure of T1D.

Work Experience

Associate Investigator – Faculty MD

2018 - present

AdventHealth Translational Research Institute – AdventHealth Orlando, Orlando, FL, USA

Skills and Competences

- Clinical and translational research focused on Adult-onset Type 1 Diabetes
- Metabolism dysfunction in Type 1 Diabetes
- Clinical studies of novel therapies in Type 1 Diabetes

Unit Chief – Diabetes and Islet Transplantation

2016 - 2018

University of Pittsburgh Medical Center, Italy – ISMETT-IRCCS Mediterranean Institute for Transplantation and Advanced Specialized Therapies

Clinical Assistant Professor of Medicine

2016 - 2018

School of Medicine, Department of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, USA based in Palermo, Italy

Attending Physician, Diabetology **2012 - 2016**

Junior Attending Physician, Diabetology **2009 - 2012**

University of Pittsburgh Medical Center, Italy – ISMETT Mediterranean Institute for Transplantation and Advanced Specialized Therapies

Clinical Skills and Competences

- Clinical Pancreatic Islet Transplantation Program Director, protocol establishment, patient selection and follow-up. First islet transplantation in Southern Italy.
- Medical aspects of pancreas transplantation (patient selection, post-transplant follow-up)
- Clinical care and epidemiology research on general and post-transplant diabetes patients
- Clinical care of transplantation and surgical patients with an endocrine disease
- Type 1 diabetes clinical care, with a focus on intensive education programs and use of new technologies
- Endocrine management of obesity. Member of the team who positioned the first EndoBarrier device in Italy.

Visiting Research Associate, Postdoctoral Associate, Research Associate **2004 - 2008**

Department of Immunogenetics, Division of Pediatrics – University of Pittsburgh School of Medicine

Laboratory Skills and Competences

- Clinical management of Cynomolgus Macaca model of insulin-dependent diabetes and pancreatic islet xenotransplantation
- Pancreatic islet isolation from human, pig, and primate. Cell and pancreatic islet culturing.
- Type 1 Diabetes Biomarker Prediction Research; specifically, pancreatic islets autoantibodies
- Two-dimensional gel electrophoresis , Western blotting and proteomics

Education and Medical Training

Doctor of Medicine and Surgery (M.D.) **1998**

University of Cagliari - Italy (highest honors)

Post-Doctoral Clinical Training

Endocrinology, Diabetes, and Metabolism Residency and Fellowship **1998 - 2003**

University of Cagliari, Italy (highest honors)

Center for the Study of Thyroid Diseases, School of Endocrinology

Clinical Skills and Competences

- Type 1 Diabetes diagnosis and management
- Thyroid and autoimmune endocrine disease
- General endocrinology

Medical Intern, Research Doctor **1995 - 2004**

San Michele Hospital, Cagliari, Italy

Type 1 Diabetes Unit, Department of Internal Medicine

Research physician for the following projects

- Member of the coordinating group of the Sardinian Type 1 Diabetes Registry (epidemiology of Type 1 Diabetes)

- DASS – Diabetes Autoimmunity in Sardinia (Epidemiology of prediabetes Type 1 and autoimmune thyroid diseases)
- Sardinian Type 1 Diabetes Registry (Epidemiology of type 1 diabetes in Sardinia) and Eurodiab
- EURODIAB Prospective Complication Study (Epidemiology of chronic complications in Type 1 Diabetes)

Certification and Licensure

Licensed Physician, Italy

1999

Additional Education and Training

March 2010

Mastering Your Diabetes

Advanced course on intensive insulin therapy management for Type 1 Diabetes patients
University of Miami School of Medicine - Diabetes Research Institute (DRI), Miami, FL, USA

April 2007

Islet Autoantibody Measurement

Professor Polly Bingley and Professor EAM Gale Laboratory, Southmead Hospital, Bristol, UK

September 2003

Observation of research activities of the cGMP Facility and Clinical Islet Transplantation

Program at the Cell Transplant Center, Diabetes Research Institute (DRI) - University of Miami School of Medicine, Miami, FL, USA

April 2003

Eighth Cambridge Seminar on the Epidemiology and Public Health Aspects of Diabetes Mellitus

Methodology of Epidemiology in Diabetes Course, sponsored by WHO, CDC, IDF, Unilever.
Clare College, Cambridge, UK

November 2002

Third Science School in Research Methodology

Clinical research methodology in Type 1 Diabetes.
International Society of Pediatric and Adolescent Diabetes
The Hospital for Sick Children, Toronto, Canada

October 2002

EASD Scientists Training Course

Laboratory techniques in Type 1 Diabetes (Autoimmunity, immunohistochemistry and immunofluorescence, PCR, islet transplantation in rodents)
Barbara Davis Center for Childhood Diabetes, Denver, CO, USA

September-October 1999

Visiting fellow

Islet autoantibodies measurement.
Department of Diabetes and Metabolism - University of Bristol, UK

February 1999

TRIGR Study (Trial to Reduce IDDM in the Genetically at Risk) Research Fellow

TRIGR study Research doctor (NIH-funded international trial for the primary prevention of Type 1 Diabetes by avoiding milk protein intake in infants at high risk)
Type 1 Diabetes Unit - St. Michele Hospital - Cagliari, Italy

Type 1 Diabetes in Acute Pancreatitis Consortium

The objective of this program is to investigate the incidence, etiology and pathophysiology of diabetes following acute pancreatitis with a particular emphasis on the auto-immune processes that result in T1D.

Role: Sub-Investigator

Completed Research Support

HEALTH-2013-F4-602235 Santin 10/01/13-09/30/17

Nano Engineering for Cross Tolerance: new approach for bioengineered, vascularized, chimeric islet transplantation in non-immunosuppressed hosts (NEXT)

The main purpose of this study was the creation of engineered chimeric pancreatic islets by combining donor β -cells and recipient endothelial precursors by means of an artificial poly-lysine glycocalyx carrying immunosuppressant molecules.

Role: Co-Investigator

UPMC-Italy Casu 07/01/13-06/30/16

EndoBarrier Versus Intra-gastric Balloon in Obese Diabetic Patients with type 2 diabetes (NCT01848795)

The main purpose of the project was to study the efficacy of the EndoBarrier in improving the metabolic compensation and weight loss compared to an intra-gastric balloon in patients with obesity and type 2 diabetes.

JDRF Grant Number 3-2006-120 Casu 02/01/06-01/01/08

JDRF post-doctoral Fellowship "Autoimmunity and Proteomics in Type 1 Diabetes"

The goal of this project was the identification of novel pancreatic islet autoantigens with a proteomic approach.

Role: PI

Other Completed Research Support

- Cochrane-Weber Fellowship – Children's Hospital of Pittsburgh Foundation (July 2004-June 2005) for proposal "Proteomics and Humoral Autoimmunity in Childhood Diabetes"
- EASD travel grant for EASD Scientists Training Course 2002 – Barbara Davis Center for Childhood Diabetes – October 7th-11th, 2002
- EASD travel grant for 36th annual meeting of the European Association for the Study of Diabetes. Jerusalem (Israel) September 17th-21st, 2000
- Eurodiab TIGER Visiting Fellowship, Dept. of Diabetes & Metabolism University of Bristol, UK

Peer Review Activity

- Xenotransplantation
- Clinical Endocrinology
- PLOS One
- Journal of Material Science (2017)
- Scientific Reports (2019)
- Diabetologia (2020)

Publications

- **A. Casu**, M. Carlini, A. Contu, G.F. Bottazzo, M. Songini. Type 1 Diabetes in Sardinia is not linked to nitrate levels in drinking water. *Diabetes Care* 2000, 23 (7): 1043-44
- M. Songini, **A. Casu**, The Sardinian Collaborative Group for the Epidemiology of IDDM, I. Askenazi and Z. Laron. Seasonality of birth in children (0-14 years) and young adults (0-29 years) with type 1 diabetes mellitus in Sardinia differs from that in the general population. *Journal of Pediatric Endocrinology and Metabolism* 2001, 14: 781-3

- **A Casu**, C Pascutto, L Bernardinelli, M Songini. Bayesian approach to study the temporal trend and the geographical variation in the risk of type 1 diabetes. The Sardinian conscript Type 1 Diabetes registry. *Pediatric Diabetes* 2004, 5: 32-38
- **A Casu**, C Pascutto, L Bernardinelli, the Sardinian IDDM Epidemiology Study Group and Marco Songini. Type 1 Diabetes Among Sardinian Children Is Increasing. The Sardinian diabetes register for children aged 0–14 years (1989–1999). *Diabetes Care* 2004, 27:1623-1629
- Laron Z, Lewy H, Wilderman I, **Casu A**, Willis J, Redondo MJ, Libman I, White N, Craig M: Seasonality of month of birth of children and adolescents with type 1 diabetes mellitus in homogenous and heterogeneous populations. *Isr Med Assoc J* 2005, 7:381-384
- **Casu A**, Trucco M, Pietropaolo M: A look to the future: prediction, prevention, and cure including islet transplantation and stem cell therapy. *Pediatr Clin North Am* 2005, 52:1779-1804
- Songini M, **Casu A**. Epidemiology of childhood diabetes. *Acta Biomed* 2005, 76 Suppl 3:19-25
- Campanile N, Rood PP, Yeh P, **Casu A**, Bottino R, Cooper DK. Acute gastric dilatation after porcine islet transplantation in a cynomolgus monkey - case history and review of the literature. *Xenotransplantation* 2007, 14:265-70
- van der Windt DJ, Bottino R, **Casu A**, Campanile N, Cooper DK. Rapid loss of intraportally transplanted islets: an overview of pathophysiology and preventive strategies. *Xenotransplantation* 2007, 14:288-97
- Trucco M, **Casu A**, Bottino R. The pig as the donor of pancreatic islets for men. *Vet Res Commun* 2007, Suppl 1:27-33.
- **Casu A***, Bottino R*, Balamurugan AN, Hara H, van der Windt DJ, Campanile N, Smetanka C, Cooper DK, Trucco M. Metabolic aspects of pig-to-monkey (*Macaca fascicularis*) islet transplantation: implications for translation into clinical practice. *Diabetologia* 2008, 51:120-129. * equally contributed
- Bottino R, Criscimanna A, **Casu A**, He J, van der Windt DJ, Rudert WA, Giordano C, and Trucco M. Recovery of Endogenous β -Cell Function in Nonhuman Primates After Chemical Diabetes Induction and Islet Transplantation. *Diabetes* 2009, 58: 442-447
- Van der Windt DJ, Bottino R, **Casu A**, et al. Long-term controlled normoglycemia in diabetic non-human primates after transplantation with hCD46 transgenic porcine islets, *American Journal of Transplantation* 2009 Dec;9(12):2716-26
- Echeverri GJ, McGrath K, Bottino R, Hara H, Dons EM, van der Windt DJ, Ekser B, **Casu A**, Houser S, Ezzelarab M, Wagner R, Trucco M, Lakkis FG, Cooper DKC. Endoscopic Gastric Submucosal Transplantation of Islets (ENDO-STI): Technique and Initial Results in Diabetic Pigs. *American Journal of Transplantation* 2009, 9 (11):2485-96
- Cooper DKC, **Casu A**. The international Xenotransplantation Association consensus statement on conditions for undertaking clinical trials of porcine islet products in type 1 diabetes-Chapter 4: Pre-clinical efficacy and complication data required to justify a clinical trial. *Xenotransplantation* 2009, 16:229-238
- **Casu A**, Echeverri GJ, Bottino R, van der Windt DJ, He J, Ekser B, Ball S, Ayares D, Cooper DKC. Insulin secretion and glucose metabolism in alpha 1,3-galactosyltransferase knock-out pigs compared to wild-type pigs. *Xenotransplantation* March-April 2010, 17:131-139
- Morran MP*, **Casu A***, Arena VC, Pietropaolo S, Zhang YJ, Satin LS, Nelson P, Omenn GS, Trucco M, Becker DJ, Pietropaolo M. Humoral Autoimmunity against the Extracellular Domain of the Neuroendocrine Autoantigen IA-2 Heightens the Risk of Type 1 Diabetes. *Endocrinology* 2010, 151(6): 2528-37 * equally contributed
- Marigliano M, **Casu A**, Bertera S, Trucco M, Bottino R. Hemoglobin A1C Percentage in Nonhuman Primates: A Useful Tool to Monitor Diabetes before and after Porcine Pancreatic Islet Xenotransplantation. *J Transplant* 2011; 2011:965605
- van der Windt DJ, Bottino R, Kumar G, Wijkstrom M, Hara H, Ezzelarab M, Ekser B, Phelps C, Murase N, **Casu A**, Ayares D, Lakkis FG, Trucco M, Cooper DKC. Clinical Islet Xenotransplantation – How Close Are We? *Diabetes* 2012 Dec;61(12):3046-55
- Vizzini G, Gruttadauria S, Spada M, Bertani A, Bertani T, **Casu A**, Raffa G, Sciacca S, Di Gesaro G, Pilato M, De Monte L, Vitulo P, Luca A, Arcadipane A, Gridelli B ISMETT: An International Collaboration on Organ

Transplantation. Clinical Transplants 2015. Editors Matthew J. Everly and Paul I Terasaki. Published by Terasaki Foundation Laboratory 11570 Olympic Boulevard, Los Angeles, California.

- V. Miceli, V. Meli, M. Blanchard-Desce, T. Bsaibess, M. Pampalone, P. G. Conaldi, C. Caltagirone, M. Obiols-Rabasa, J. Schmidt, Y. Talmon, **A. Casu*** and S. Murgia*. In vitro imaging of b-cells using fluorescent cubic bicontinuous liquid crystalline nanoparticles. *RSC Adv* 2016, 6, 62119–62127 (*equally contributed)
- Acevedo M, James E, Morran MP, Pietropaolo SL, Ouyang Q, Songini M, Liguori M, **Casu A**, Auchus RJ, Yu L, Michels A, Gianani R, and Pietropaolo M. Identification of unique antigenic determinants in the amino-terminus of IA-2 (ICA512) in childhood and adult autoimmune diabetes: New Biomarker Development. *Diabetes Care* 2017, *Diabetes Care* 2017; 40: 561-568
- Miceli V, Pampalone M, Frazziano G, Grasso G, Rizzarelli E, Ricordi C, **Casu A**, Iannolo G, Conaldi PG. Carnosine protects pancreatic beta cells and islets against oxidative stress damage. *Mol Cell Endocrinol*. *Mol Cell Endocrinol*. 2018 Oct 15;474:105-118. doi: 10.1016/j.mce.2018.02.016. PMID: 29496567
- **Casu A**, Kanapka L. G., Foster N. C., Hirsch I. B., Laffel L. M., Shah V. N., DeSalvo D. J., Lyons S. K., Vendrame F., Aleppo G., Mastrandrea L. D., Pratley R. E., Rickels M. R. and Peters A. L. for the T1D Exchange Clinic Network. Characteristics of adult- compared to childhood-onset type 1 diabetes. *Diabet Med*. 2020 Apr 30. doi: 10.1111/dme.14314. Online ahead of print. PMID: 32353892
- **Casu A**, Bilal A, Pratley RE on behalf of the Advancing Care for Type 1 Diabetes, Obesity Network (ACT1ON). Pharmacological therapies to address obesity in type 1 diabetes. *Curr Opin Endocrinol Diabetes Obes*. 2020 Aug;27(4):194-206
- Fornasier M, Porcheddu A, **Casu A**, Raghavan SR, Jönsson P, Schillén K, Murgia S. Surface-modified nanoerythroosomes for potential optical imaging diagnostics. *J Colloid Interface Sci*. 2020 Aug 14;582(Pt A):246-253. doi: 10.1016/j.jcis.2020.08.032. Online ahead of print. PMID: 32823126
- E Pala, D Iafusco, **A Casu**, R Pintus, V Fanos M Songini. Ruolo del microbioma nel diabete mellito di tipo 1 [Role of the microbiome in type 1 diabetes] *Il Diabete*; 2020 Oct, 32(3): 188-203
- Nunez Lopez YO, **Casu A**, Preatley RE. Isolation of extracellular vesicles from SARS-CoV-2 positive samples should be conducted under heightened lab safety standards. *Frontiers in Immunology 2021 accepted for publication*.
- F. Vendrame, P. Calhoun, L.E. Bocchino, R.E. Pratley, **A. Casu**. Impact of bariatric surgery and weight loss medications in adults with type 1 diabetes in the T1D Exchange Clinic Registry. *Journal of Diabetes and Its Complications 2021 accepted for publication*.

Publications as a Member of a Study Group

- The Sardinian IDDM Study:1. Epidemiology and geographical distribution of IDDM in Sardinia during 1989 to 1994. M. Songini, L. Bernardinelli, D. Clayton, C. Montomoli, C. Pascutto, M. Ghislandi, D. Fadda, G.F. Bottazzo, and The Sardinian IDDM Study Groups. *Diabetologia* 1998; 41: 221-227
- EURODIAB ACE Study Group: Variation and trends in incidence of childhood diabetes in Europe. *The Lancet* 2000; 355: 873-876
- M. Karvonen, M. Vhk-Kajander, E. Moltchanova, I. Liebman, R. La Porte, J. Tuomilehto for the Diabetes Mondiale (DiaMond) Project Group. Incidence of childhood type 1 diabetes worldwide. *Diabetes Care* 2000; 23: 1516-26
- N. Chaturvedi, A-K. Sjoelie, M. Porta, SJ. Aldington, JH. Fuller, M. Songini. EM. Kohener and the Eurodiab Prospective Complication Study Group. Markers of insulin resistance are strong risk factors for retinopathy incidence in type 1 diabetes. *Diabetes Care* 2001; 24: 284-9
- A. Loviselli, F. Velluzzi, P. Mossa, MA. Cambosu, G. Secci, F. Atzeni, A. Taberlet, A. Balestrieri, E. Martino, L. Grasso, M. Songini, GF. Bottazzo, S. Mariotti and The Sardinian Schoolchildren Study Group. The Sardinian Autoimmunity Study: 3. Studies on circulating antithyroid antibodies in Sardinian schoolchildren: relationship to goiter prevalence and thyroid function. *Thyroid* 2001; 11: 849-857
- A. Green, CC. Patterson on behalf of the Eurodiab TIGER Study Group. Trends in the incidence of childhood-onset diabetes in Europe 1989-1998. *Diabetologia* 2001; 44 (Suppl. 3): B3
- CC. Patteson, G. Dahlquist, G. Soltesz, A. Green on behalf of the Eurodiab TIGER Study Group. Is childhood-onset Type 1 diabetes a wealth-related disease? An ecological analysis of European incidence rates. *Diabetologia* 2001; 44 (Suppl. 3): B14

- M. Porta, A-K. Sjoelie, N. Chaturvedi, L. Stevens, R. Rottiers, M. Veglio, JH. Fuller and the EURODIAB Prospective Complication Study Group. Risk factors for progression to proliferative diabetic retinopathy in the EURODIAB Prospective Complication Study. *Diabetologia* 2001; 44: 2203-2209
- N. Chaturvedi, JH. Fuller, M.R. Taskinen on behalf of the EURODIAB PCS Group. Differing associations of lipid and lipoprotein disturbances with the macrovascular and microvascular complications of type 1 diabetes. *Diabetes Care* 2001; 24: 2071-2077
- SS. Soedamah-Muthu, HM Colhoun, H. Abrahamian, NN. Chan, R. Mangili, GP. Reboldi, JH. Fueller, the EURODIAB Prospective Complication Study Group. Trends in Hypertension management in Type 1 diabetes across Europe, 1989/1990-1997/1999. *Diabetologia* 2002; 45: 1362-1371
- N. Chaturvedi, CDA Stehouwer, CG Schalkwijk, H Abrahamian, JH Fuller and the Eurodiab Prospective Complication Study Group. Circulating and urinary transforming growth factor β 1, amadori albumin, and complications of type 1 diabetes. The Eurodiab Prospective Complications Study. *Diabetes Care* 2002; 25: 2320-2327
- M Schram, N Chaturvedi, JH Fuller, CDA Stehouwer and the Eurodiab Prospective Complication Study Group. Pulse pressure is associated with age and cardiovascular disease in type 1 diabetes: the Eurodiab Prospective Complication Study. *Journal of Hypertension* 2003; 21: 2035-2046
- Soedamah-Muthu SS, Chaturvedi N, Witte DR, Stevens LK, Porta M, Fuller JH; EURODIAB Prospective Complications Study Group. Relationship between risk factors and mortality in type 1 diabetic patients in Europe: the EURODIAB Prospective Complications Study (PCS). *Diabetes Care*; 2008: 1360-6
- Nin JW, Ferreira I, Schalkwijk CG, Prins MH, Chaturvedi N, Fuller JH, Stehouwer CD; EURODIAB Prospective Complications Study Group. Serum high-mobility group box-1 levels are positively associated with micro- and macroalbuminuria but not with cardiovascular disease in type 1 diabetes: the EURODIAB Prospective Complications Study. *Eur J Endocrinol* 2012;166: 325-32
- Schoenaker DA, Toeller M, Chaturvedi N, Fuller JH, Soedamah-Muthu SS; EURODIAB Prospective Complications Study Group. Dietary saturated fat and fibre and risk of cardiovascular disease and all-cause mortality among type 1 diabetic patients: the EURODIAB Prospective Complications Study. *Diabetologia* 2012;55 :2132-41
- Nucci AM, Becker DJ, Virtanen SM, Cuthbertson D, Softness B, Huot C, Wasikowa R, Dosch HM, Akerblom HK, Knip M; TRIGR Study Group. Growth differences between North American and European children at risk for type 1 diabetes. *Pediatr Diabetes* 2012;13: 425-31
- van Bussel BC, Soedamah-Muthu SS, Henry RM, Schalkwijk CG, Ferreira I, Chaturvedi N, Toeller M, Fuller JH, Stehouwer CD; EURODIAB Prospective Complications Study Group. Unhealthy dietary patterns associated with inflammation and endothelial dysfunction in type 1 diabetes: the EURODIAB study. *Nutr Metab Cardiovasc Dis* 2013; 23: 758-64
- Soedamah-Muthu SS, Chaturvedi N, Fuller JH, Toeller M; EURODIAB Prospective Complications Study Group. Collaborators (130) Do European people with type 1 diabetes consume a high atherogenic diet? 7-year follow-up of the EURODIAB Prospective Complications Study. *Eur J Nutr* 2013; 52: 1701-10
- Knip M, Åkerblom HK, Becker D, Dosch HM, Dupre J, Fraser W, Howard N, Ilonen J, Krischer JP, Kordonouri O, Lawson ML, Palmer JP, Savilahti E, Vaarala O, Virtanen SM; TRIGR Study Group. Hydrolyzed infant formula and early β -cell autoimmunity: a randomized clinical trial. *JAMA* 2014 11; 311: 2279-87
- Peeters SA, Engelen L, Buijs J, Chaturvedi N, Fuller JH, Schalkwijk CG, Stehouwer CD; EURODIAB Prospective Complications Study Group. Plasma levels of matrix metalloproteinase-2, -3, -10, and tissue inhibitor of metalloproteinase-1 are associated with vascular complications in patients with type 1 diabetes: the EURODIAB Prospective Complications Study. *Cardiovasc Diabetol.* 2015 Mar 10;14:31

Relevant presentations as an invited speaker

- *Transplantation: Complexity vs. Chaos?* Lake Como School of Advanced Studies School on Organ Transplantation, June 2016
Presentation Title: Cardiovascular and Metabolic complications

- *Joint Congress of the Cell Transplant Society (CTS) and International Xenotransplantation Association (IXA)*. Miami, USA, October, 2011.

Presentation Title: Pre-clinical efficacy and complication data required to justify a clinical trial of islet xenotransplantation.



Anna Casu
14 Feb 2021