



 POLITECNICO DI MILANO



Academic CV

Professor Raffaele L. Dellaca', Ph.D.

Department of Electronics, Informatics and Biomedical Engineering (DEIB)

Associate Professor

November, 2020

CURRICULUM VITAE

Professor Raffaele L. Dellaca', Ph.D.

ACADEMIC BACKGROUND: EDUCATION AND TRAINING

1. 1998-2001: Ph.D. in Biomedical Engineering, thesis title: "Assessment of respiratory mechanics by opto-electronic plethysmography and forced oscillations" (March 5th, 2001)
2. 1989-1997: M. Sc. in Systems and Control Science Engineering, Politecnico di Milano, Italy, April 9th, 1997.
3. Graduation from Scientific High School, Italy, 1989.

HONOURS, FELLOWSHIPS & AWARDS

1. Fellow of the European Respiratory Society, European Respiratory Society, 2005
2. START CUP Milano Lombardia 2007, Regione Lombardia Gov, 2007
3. Premio Imprese Creative e Innovative - Bando per il sostegno alla creazione di nuove imprese creative e innovative - Provincia e Camera di Commercio di Milano, Camera di commercio di Monza e Brianza - Anno 2008
4. ACES Awards: finalists in the category Fast Start. ACES Academic Awards 2009, Office of the Mayor of Paris, Paris Hall (Hôtel de Ville) Sciencebusiness - Academic Enterprise Awards - the only pan-European awards for spin-out companies emerged from European universities and public research centers, 2009
5. National Academic Qualification as Full Professor, 2014 and 2020
6. Awarded as Raine Visiting Professor, University of Western Australia, Perth, Australia, 2016.

RESEACH PROFILE AND FOCUS:

During his Ph.D., post-doc training and Professorship, Prof. Dellaca' was mentored in the field of lung physiology by Dr. Peter Macklem (McGill University, Montreal, Canada) via a long-term collaboration. His focus in non-invasive monitoring of airway and lung mechanics was further developed during his time as a Research Associate at the Boston University, under the supervision of Prof. Kenneth Lutchen, Ph.D., and then with the world leader in the ventilatory care of adult RDS, Prof. Luciano Gattinoni (Universita' di Milano, Milano, Italy). He also studied several aspects of pathophysiology of COPD and Asthma during a 18-years long (and still ongoing) collaboration with Prof. Peter Calverley (University of Liverpool, Liverpool, UK), Prof. Vito Brusasco (Universita' di Genova, Genova, IT) and Dr. Riccardo Pellegrino (Ospedale Santa Croce e Carle, Cuneo, IT). Prof. Dellaca' research included the study of respiratory physiology, non-invasive methods for assssing lung function and optimizing mechanical ventilation, with applications in both invasive and non-invasive ventilation, with focus on respiratory diagnostic and in improving respiratory support in COPD and newborns. He has coordinated or participated to several research projects funded by international or national funding agencies, companies or private/charity foundations. Prof. Dellaca' is now internationally recognized as a world leading expert on Oscillatory Mechanics and Forced Oscillation Technique. He is regularly invited to lecture at national and international meetings. He locally influences clinical practice as co-organiser of an Italian National Course on Advanced Mechanical Ventilation on Newborns since 2007, which has been attended by over 200 delegates (mostly neonatologists), and by teaching the basics of respiratory mechanics and how to measure it in several CME courses for chest physicians.

Prof. Dellaca' main research interests are in the area of biomedical technologies and respiratory physiology, in particular:

- Development of new methods, electronic technologies, instrumentation and devices for biomedical instrumentation.
- Bioengineering aspects of respiratory physiology, in particular the kinematics, mechanics and dynamics of the tracheo-bronchial tree, of the lung and of the chest wall and their related modifications induced by diseases.
- Development of new methods for the study of respiratory mechanics, in particular by the forced oscillations technique, by optoelectronic plethysmography and by lung sounds.
- Study of mechanical ventilation and anaesthesia and its effects on respiration, development of new methods for optimising mechanical ventilation.
- Analysis of natural variability of the breathing pattern and the study of respiratory control and its relationships with the mechanical properties of lung and chest wall.

MAIN ACHIEVEMENTS:

Prof Dellacà's career achievements include:

- a) Development of a new method for the non-invasive detection of Expiratory Flow Limitation (EFL) in spontaneously breathing COPD and Asthma patients based on the FOT. This method has been patented in 2002 and published in the European Respiratory Journal (ERJ) in 2004 in a paper that has been editorialised (185 citations, Dec. 2017). This method has been implemented in a new FOT device for lung function testing (Resmon PRO) developed and produced by Restech s.r.l., Spin-off Company of the Politecnico di Milano University co-funded by Prof. Dellaca'. Moreover, this method showed to be effective during mechanical and non-invasive ventilation (Dellaca' et al., ERJ 2006) allows the continuous tailoring of PEEP in order to match intrinsic PEEP. To this purpose, the patent has been licensed to Philips Respironics and a first prototype of a NIV ventilator able to continuously adjust PEEP via measures of EFL through FOT has been developed and got approval as medical device in Europe in 2020. Several multicentre studies involving centres in Europe and US are now running.
- b) Development of a new method for the evaluation and monitoring of lung volume recruitment/derecruitment in mechanically ventilated patients with Respiratory Distress Syndrome. This method, based on a combination of FOT and PEEP trials, has been patented and several validation studies on a porcine surfactant-depletion model published (Intensive Care Medicine 2009 and 2011, the latter being editorialised, and Critical Care 2011 and 2012). This method is easily integrated into a mechanical ventilator and can provide direct feedback to clinicians for dynamic tailoring of applied pressure to the patient actual condition. Prof. Dellaca's research includes human preterm infant first author studies of PEEP titration during non-invasive (Intensive Care Medicine 2013) and HFOV (Critical Care Medicine 2013, editorialised), thus demonstrating the clinical potential of the FOT system to be used in this project. Given the potential of this technology in neonatal ICU, a research collaboration started in 2011 between Prof. Dellaca and David Tingay and Peter Dargaville to systematically explore the potential of FOT to describe lung mechanics and guide PPV delivery in all aspects of neonatal care (Zannin et al, Pediatric Research 2014).
- c) Development of a new approach for the assessment of lung function testing based on novel technologies allowing the development of devices for unsupervised home lung function monitoring (Physiological Measurements 2010), combined with the analysis of day-by-day variability. This approach introduces new diagnostic parameters with high sensitivity not only for diagnosis and assessment of Asthma but also for the early detection of exacerbations (American Journal of Respiratory and Critical Care Medicine 2012). New technologies for home monitoring FOT devices have been patented (2 patents), and Restech s.r.l. is currently developing a product based on this concept and design (Resmon HOME). In 2012, Prof. Dellaca' was awarded a competitive 3.8 million Euro (4.8 million AUD) European Union FP7-Health call grant to validate the use of FOT in home and inpatient monitoring in collaboration with University of Liverpool (UK), Universidad de Barcelona (Spain), Uppsala Universitet (Sweden), Tesan S.p.A. (Italy), University of Lincoln

(UK), University of Tallin (Estonia) and the Norwegian Centre for Integrated Care and Telemedicine. The main results of this trial were published on the American Journal of Respiratory and Critical Care Medicine (Dr. Dellaca' last authorship, #1 rank scientific journal in respiratory and critical care medicine with an impact factor of 13,204 in 2017. The paper has been editorialized).

APPOINTMENTS:

- 2011-today: Associate Professor at the Department of Electronics, Informatics and Biomedical Engineering (DEIB) at the Politecnico di Milano University.
- 2010-2015: President and Chairman of the Board of Directors of Restech s.r.l., a spin-off company of Politecnico di Milano that develops innovative medical devices for diagnosis and home monitoring based on the Forced Oscillation Technique (FOT) technology.
- 2005-2011: Assistant Professor (Researcher) at the Biomedical Engineering Department at the Politecnico di Milano University.
- 2001-2004: Research Fellow at the Biomedical Engineering Department at the Politecnico di Milano University.
- 2001-2003: Visiting Research Associate at the Biomedical Engineering Department at the Boston University, Boston, USA (occasional visits of few month each during the period)
- 1997-2003: Researcher at the Bioengineering Centre of the Politecnico di Milano University and Pro Juventute Don Gnocchi Foundation.
- 1993-1997: Consultant for the design of digital electronic devices (Hardware and Software) for several companies (Telea Marelli S.p.A., Tifas S.p.A., Hoffmann Italia, etc).

GRANTS

Peer Reviewed Grants from Public Bodies or Foundations (selection):

1. Research project funded by the regional government of Regione Lombardia – DG Welfare - BANDO PER IL FINANZIAMENTO DI PROGETTI RICERCA IN AMBITO SANITARIO CONNESSI ALL'EMERGENZA DEL COVID-19. “Registro dei pazienti ospedalizzati per infezione da COVID-19 in Lombardia - RECOVER - REgistry for COVid19 EmeRgency. Duration: 12 months. Role in the project: Responsible of the Politecnico di Milano Unit; start date 20/07/2020
2. Research project funded by the Department of Health della Western Australia: TPCHRF - Round 6 - Promoting normal lung growth, structure and function in congenital diaphragmatic hernia: a transdisciplinary approach. Role in the project: co-Chief Investigator 01-07-2018-today.
3. Progetto Por Fesr 2014-2020 (Asse I – azione I.1.b.1.2). Bando Smart Fashion and Design. Title of the project: “Smart hydration garment (Smyt)”. Duration: 24 months. Role in the project: Responsible of the Politecnico di Milano Unit;
4. Progetto prog. 6/9 n. 1178 SPIN-OFF – D.M. 593/00 art. 11 / D.M. 113 del 27.04.2010 – “Sviluppo di un sistema di monitoraggio domiciliare della funzione respiratoria con patologie respiratorie croniche”. Duration: 36 months. Role in the project: Responsible of the Project (PI);
5. CHROMED – European Union FP7 - Health - Clinical tRials fOr elderly patients with Multiple Disease HEALTH.2012.2.2.2-2: Investigator-driven clinical trials for optimisation of management of elderly patients with multiple diseases. Duration 36 months. Role in the Project: Technical Manager for the whole consortium.
6. Progetti di Ricerca Industriale e Sviluppo Sperimentale nei Settori strategici di Regione Lombardia e del Ministero dell'Istruzione, dell'Università e della Ricerca”, Progetto di R&S ID n. 30211142 dal titolo “LifeMonitor”. Duration: 30 months. Role in the Project: Responsible for the Politecnico di Milano activities (research groups from both the Biomedical and Management Engineering Departments);

7. European Union FP7-ICT-2007-1- 216461 CHRONIOUS An Open, Ubiquitous and Adaptive Chronic Disease Management Platform for COPD and Renal Insufficiency. Duration 52 months. Role in the Project: Responsible for the activities of Work Package 6 for the project and for the Politecnico di Milano unit.
8. Australian National Health and Medical Research Council (NHMRC) Project Grant Application APP1065233 - 2013 "Volumetric vs pressure-defined ventilation strategies at birth". Duration 24 months. Role in the Project: Chief Investigator C;
9. Ricerca Finalizzata Italian Health Ministry "Broncopneumopatia Cronica Ostruttiva: approccio integrato multidisciplinare allo studio della eterogeneità patogenetica, fenotipica ed evolutiva della malattia". Duration: 36 months. Role in the Project: Responsible for the Politecnico di Milano unit.
10. British Lung Foundation Research Grant TREVOR CLAY MEMORIAL GRANT - 2004 Research Round. The use of Active and Passive Sound in the identification and monitoring of COPD. Duration: Mar 2005- Feb 2008. Role in the Project: Co-PI with Prof. John Earis, University of Liverpool, UK from 01-03-2005 to 01-02-2008
11. Bando di Ricerca del Politecnico di Milano - 5 per 1000 Junior -Advanced nano-technologies to assess lung tissue mechanics for improving understanding and treatment of infant respiratory distress syndrome. Duration of the project: 24 months. Role in the project: PI.
12. Fondazione Cottino, Research Grant for studies on chronic respiratory disorders. Duration: 24 months. Role in the project: Responsible for the scientific activities of the Politecnico di Milano unit.

Industry research grant:

Raffaele Dellaca' received industry funding for developing research from: Philips Respironics, Chiesi Farmaceutici, Ugo Basile s.r.l., BTS s.r.l., Lima LTO, Esaote Biomedica, Acutronic S.A.

COLLABORATIONS:

Academic Collaborations (past and active)

Prof. Peter Macklem, McGill University, Montreal (Canada);
 Prof. Kenneth Lutchen and Prof. Bela Suki, Boston University, Boston, US;
 Prof. Ramon Farre' and Daniel Navajas, Universitat di Barcelona, Barcelona, Spain;
 Prof. Goran Hedenstierna and Dr. Peter Fryckholm, Uppsala University, Uppsala, Sweden;
 Prof. Luciano Gattinoni, Università degli Studi di Milano and Policlinico di Milano, Italy;
 Prof. Peter Calverley, Liverpool University, Liverpool, UK;
 Prof. Vito Brusasco, and Riccardo Pellegrino, Università' di Genova, Genova, Italy;
 Prof. Bartolome Celli, Harvard University, Cambridge (MA), US;
 Prof. Giuseppe Miserocchi, Università degli Studi di Milano Bicocca, Milano, Italy;
 Prof. Peter Dargaville and David Tingay, Melbourne, Australia;
 Prof. Fabio Mosca, Università' di Milano, Milano, Italy;
 Prof. Greg King and Cindy Tamrin, Sydney, Australia;
 Prof. Jane Pillow, University of Western Australia, Perth, Australia;
 Prof. Kurt Albertine and Marjanna Dahl, University of Utah, Salt Lake City, US
 Prof. Alain Van Muylem, Université de Mons and CUB Erasme, Brussels Belgium.
 Prof. J. Vlot, F. Sterke, W. van Weteringen, Erasmus medical Center, Rotterdam, NL
 Prof. Nicholas Hart, Guy's and St Thomas' NHS Foundation Trust University Hospital, London, UK
 Prof. Richard Sindelar, Neonatology department, Uppsala University, Uppsala, Sweden
 Prof. Jean-Pierre Lavoie, Université de Montréal, Montreal, Canada
 Prof. Anton van Kaam and Dr. G.J. Hutten, Emma Children's University Hospital, Amsterdam, NL

Industry Collaboration:

Philips Respironics; Chiesi Farmaceutici; Novartis Pharma; Viasys Healthcare (Care Fusion, now Vyair); Acutronic S.A.; Esaote Biomedica; BTS; LIMA LTO;

PARTICIPATION TO SCIENTIFIC SOCIETIES COMMITTEES AND TASK FORCES

Raffaele Dellaca' is currently member of the following Scientific Societies Task Force/Committees:

- ERS Task Force 'Functional evaluation of lung and airways: building a flow-chart for a comprehensive, multifaceted, evidence-based use of the different techniques'
- American Thoracic Society (ATS) and European Respiratory Society (ERS) Project Committee: ATS/ERS Statement on Technical Standards for the Forced Oscillation Technique.

POSTGRADUATE & UNDERGRADUATE TEACHING:

Raffaele Dellaca' organized several ECM courses (recognized by the Italian Ministry of Health) for neonatologists on different aspects of the respiratory support in the newborns (Monza: 8-9 November 2007, 6-7 March 2008, March 2009, February 2010; Como: 28 Feb-March 1 2011, 21-22 November 2013, 3-4 December 2015, 27-28 November 2017, Milan 4-5 June 2018, Milan October 2018, Milan November 2018, Milan May 2019, Milan June 2019).

Prof. Dellaca' has supervised **12 PhD students, more than 60 Masters students** and was mentor of one specialization thesis in Anaesthesia and Intensive Care medicine and 3 master degree thesis in Paediatric medicine.

Raffaele Dellaca' started his regular teaching activity in 1999 as responsible of practicum for several courses in the field of Biomedical Engineering.

He has been invited as international member for the Ph.D. evaluation/defence of: Thesis evaluation of Kris Nilsen, Monash University, Melbourne (Australia), 2019; defense of Hannes Maes, Vrije Universiteit Brussel, 2017; defense of Juan J. Uriarte, Universita' di Barcellona, 2016; defense of Valentina Isetta, Universita' di Barcellona, 2013; defense of Alba Carreras, Universita' di Barcellona, 2010; defense of Alessandro Rossi, University Maastricht, 2009.

Raffaele Dellaca' is currently external supervisor for the following Ph.D. students of the University of Western Australia: Ben Stoecklin; Mar Janna Dahl

Activities as Professor responsible for courses:

- Academic years 2007-2008 to today: **Professor of Biomedical Electronics, 10 credits course**, one of the characterizing courses of the post-graduate program of Biomedical Engineering – Biomedical Technologies track.
- 2003-2007 ad-hoc **Professor Biomedical Technologies and Instrumentations, 5 credits**, for students of the Master programs in Computer Science Engineering

ADMINISTRATIVE EXPERIENCE

Grant Management

Raffaele Dellaca' had joint responsibility for budget management during early post-doctoral years and have assumed full responsibility for management of budgets associated with grants since 2008, when he got permanent position at the Politecnico di Milano University as Ricercatore di Ruolo

(equivalent to the US position as Assistant Professor). Raffaele Dellaca' is also Reference Inventor for the license agreements of his patents.

Participation to National Committees

Raffaele Dellaca' has been designated as member of the Committee of the PhD Programme in Bioengineering since 2017. Also, it has been nominated as member of the National Committee for the Professional Practice (State Certification) Exam to the Engineering License in the field of Information Technology in the years 2009, 2012 and 2014.

Non-departmental experience

From 2008 to 2015 Raffaele Dellaca' was President of the Board of Directors of Restech s.r.l., a spin-off company of the Politecnico di Milano University, aimed to develop devices based on the Forced Oscillation Technique for the functional evaluation of the respiratory system both for hospital and home applications.

PEER REVIEW INVOLVEMENT

Prof. Dellaca' is a regular reviewer of manuscripts for journals publishing biomedical, respiratory medicine and intensive care research articles (more than 50 manuscript reviews), including reviews for Critical Care Medicine, European Respiratory Journal, Journal of Applied Physiology, Thorax, European Journal of Applied Physiology, American Journal of Respiratory and Critical Care Medicine, Respirology and many other medical and biomedical engineering journals. He regularly reviews grant applications for national and international funding bodies, both public and private/charity.

From 2019 is Associated Editor of the European Respiratory Journal Open Research, an official scientific open access journal of the European Respiratory Society.

SCIENTIFIC DISCIPLINE INVOLVEMENT:

H-index: 27 (Scopus, November 2020)

PUBLICATIONS (I.F.: Impact Factor)

1. Zannin E, Milesi I, Porta R, Cacciatore S, Barbano L, Trentin R, Fanfulla F, Vitacca M, **Dellacà RL**. Effect of nocturnal EPAP titration to abolish tidal expiratory flow limitation in COPD patients with chronic hypercapnia: a randomized, cross-over pilot study. *Respir Res*. 2020 Nov 18;21(1):301. doi: 10.1186/s12931-020-01567-x. **I.F. 3,924**
2. Thamrin C, **Dellacà RL**, Hall GL, Kaczka DW, Maksym GN, Oostveen E, Simpson SJ, King GG. Technical standards for respiratory oscillometry: test loads for calibration and verification. *Eur Respir J*. 2020 Oct 8;56(4):2003369. doi: 10.1183/13993003.03369-2020. **I.F. 12,339**
3. Tarantini F, Milesi I, Murgia X, Bianco F, **Dellacà RL**. A Compartment-Based Mathematical Model for Studying Convective Aerosol Transport in Newborns Receiving Nebulized Drugs during Noninvasive Respiratory Support. *Pharmaceutics*. 2020 Sep 30;12(10):E936. doi: 10.3390/pharmaceutics12100936. **I.F. 4,421**
4. Zannin E, Veneroni C, **Dellaca' R**, Mosca F, Gizzi C, Ventura ML. Bacterial-viral filters to limit the spread of aerosolized respiratory pathogens during neonatal respiratory support in a pandemic era. *Pediatr Res*. 2020 Aug 3. doi: 10.1038/s41390-020-1102-4 **I.F. 2,88**
5. Ottaviani V, Veneroni C, Dell'Orto V, Lavizzari A, Ventura ML, Tossici M, Maroszynska I, Mosca F, Tagliabue P, De Luca D, **Dellacà RL**. Accuracy of volume and pressure delivery by mechanical ventilators in use in neonatal intensive care units: A quality control study. *Pediatr Pulmonol*. 2020 May 27. doi: 10.1002/ppul.24852. **I.F. 2,801**

6. Suh ES, Pompilio P, Mandal S, Hill P, Kaltsakas G, Murphy PB, Romano R, Moxham J, **Dellaca R**, Hart N. Auto-titrating external positive end-expiratory airway pressure to abolish expiratory flow limitation during tidal breathing in patients with severe chronic obstructive pulmonary disease: a physiological study. *Eur Respir J*. 2020 May 22:1902234. doi: 10.1183/13993003.02234-2019. **(Editorialized) I.F. 11,807**
7. Zimmermann SC, Huvanandana J, Nguyen CD, Bertolin A, Watts JC, Gobbi A, Farah CS, Peters MJ, **Dellacà RL**, King GG, Thamrin C. Day-to-day variability of forced oscillatory mechanics for early detection of acute exacerbations in COPD. *Eur Respir J*. 2020 May 19:1901739. doi: 10.1183/13993003.01739-2019. **(Editorialized) I.F. 11,807**
8. Veneroni C, Mercadante D, Lavizzari A, Colnaghi M, Mosca F, **Dellacà RL**. Changes in respiratory mechanics at birth in preterm infants: A pilot study. *Pediatr Pulmonol*. 2020 Apr 20. doi: 10.1002/ppul.24772. **I.F. 2,801**
9. Zannin E, Aarli BB, Govoni L, Pompilio PP, Baldi S, Hardie JA, **Dellaca R**. Effect of stimulating waveform and of data processing on respiratory impedance measurement. *Physiol Meas*. 2020 Apr 8. doi: 10.1088/1361-6579/ab87b1. **I.F. 2,246.**
10. Wallström L, Veneroni C, Zannin E, **Dellacà RL**, Sindelar R. Forced oscillation technique for optimising peep in ventilated extremely preterm infants. *Eur Respir J*. 2020 Feb 20. doi: 10.1183/13993003.01650-2019. **I.F. 11,807**
11. Veneroni C, Tingay DG, McCall KE, Pereira-Fantini PM, Perkins EJ, Dargaville PA, **Dellaca RL**. Respiratory mechanics during initial lung aeration at birth in the preterm lamb. *Am J Physiol Lung Cell Mol Physiol*. 2020 Jan 8. doi: 10.1152/ajplung.00302.2019. **I.F. 4,060.**
12. King GG, Bates J, Berger KI, Calverley P, de Melo PL, **Dellacà RL**, Farré R, Hall GL, Ioan I, Irvin CG, Kaczka DW, Kaminsky DA, Kurosawa H, Lombardi E, Maksym GN, Marchal F, Oppenheimer BW, Simpson SJ, Thamrin C, van den Berge M, Oostveen E. Technical Standards for Respiratory Oscillometry. *Eur Respir J*. 2019 Nov 26. doi: 10.1183/13993003.00753-2019. **I.F. 11,807.**
13. Nord A, Linner R, Milesi I, Zannin E, di Castri M, Bianco F, **Dellacà RL**, Cunha-Goncalves D, Perez-de-Sa V. A novel delivery system for supraglottic atomization allows increased lung deposition rates of pulmonary surfactant in newborn piglets. *Pediatr Res*. 2019 Nov 30. doi: 10.1038/s41390-019-0696-x. **I.F. 3,123.**
14. Tingay DG, Togo A, Pereira-Fantini PM, Miedema M, McCall KE, Perkins EJ, Thomson J, Dowse G, Sourial M, **Dellacà RL**, Davis PG, Dargaville PA. Aeration strategy at birth influences the physiological response to surfactant in preterm lambs. *Arch Dis Child Fetal Neonatal Ed*. 2019 Nov;104(6):F587-F593. doi: 10.1136/archdischild-2018-316240. **I.F. 3,776.**
15. Veneroni C, Dahl MJ, Lavizzari A, Dawson E, Rebentisch A, Studstill S, Bowen S, Albertine K, **Dellacà R**. Non-invasive measurements of respiratory system mechanical properties by the forced oscillation technique in spontaneously breathing, mixed-breed, normal term lambs from birth to 5 months of age. *Physiological Measurement*, 2019 Nov 4;40(10):105007. doi: 10.1088/1361-6579/ab3493. **I.F. 2,246.**
16. I. Milesi, R. Porta, L. Barbano, S. Cacciatore, M. Vitacca and **R.L. Dellaca'**. Automatic tailoring of the lowest PEEP to abolish tidal expiratory flow limitation in seated and supine COPD patients. *Respiratory Medicine*, <https://doi.org/10.1016/j.rmed.2019.06.022>. **I.F. 3,237**
17. E. Zannin, B. Chakrabarti, L. Govoni, P.P. Pompilio, R. Romano, P.M.A. Calverley and **R.L. Dellaca'**. Detection of expiratory flow limitation by forced oscillations during positive pressure support. *American Journal of Respiratory and Critical Care Medicine*, 2019 doi: 10.1164/rccm.201903-0570LE **I.F. 16,494**
18. G. Ferrante; G. Cilluffo; M.R. Di Pace; G. Corsello; E. Lombardi; **R. Dellacà**; V. Malizia; S. La Grutta. New insights in respiratory impedance in young children after repair of congenital diaphragmatic hernia: a cross-sectional study. *Italian Journal of Pediatrics*, <https://doi.org/10.1186/s13052-019-0670-6> **I.F. 1,963**
19. E. Zannin, R. P. Neumann, **R. Dellacà**, S. M. Schulzke. Forced oscillation measurements in the first week of life to estimate pulmonary outcome in very preterm infants on non-invasive

- respiratory support. *Pediatr. Res.* 2019 May 20. doi: 10.1038/s41390-019-0432-6 * co-senior authorship. **I.F. 3,123.**
20. Dias OM, Baldi BG, Chate RC, Ribeiro de Carvalho CR, **Dellacà RL**, Milesi I, Pereira de Albuquerque AL. Forced Oscillation Technique and Small Airway Involvement in Chronic Hypersensitivity Pneumonitis. *Arch Bronconeumol.* 2019 doi: 10.1016/j.arbres.2019.01.022. **I.F. 2,633**
 21. Gobbi, A.; Gulotta, C.; Suki, B.; Mellano, E.; Pellegrino, R.; Brusasco, V.; **Dellaca', R.** Monitoring of respiratory resistance in the diagnosis of mild-intermittent asthma. *Clinical & Experimental Allergy, Clin Exp Allergy.* 2019 Jun;49(6):921-923 DOI:10.1111/cea.13376 **I.F. 5,158**
 22. E. Zannin, M.L. Ventura, G. Dognini, C. Veneroni, J. J. Pillow, P. E. Tagliabue, R. L. Dellacà. Regional distribution of chest wall displacements in infants during high frequency ventilation. *Journal of Applied Physiology* 2019 Feb 7. doi: 10.1152/jappphysiol.01086.2018 **I.F. 2,176.**
 23. E. Zannin, S. Nyilas, K. A. Ramsey, P. Latzin, **R. L. Dellaca'.** Within-breath changes in respiratory system impedance in children with cystic fibrosis. *Pediatric Pulmonology – in press.* 10.1002/ppul.24281 **I.F 3,159.**
 24. David G. Tingay, Prue M Pereira-Fantini, Regina Oakley, Karen E McCall, Elizabeth Perkins, Martijn Miedema, Magdy Sourial, Jessica Thomson, Andreas Waldmann, **Raffaele L. Dellaca,** Peter G. Davis and Peter A. Dargaville. Gradual Aeration at Birth is more Lung Protective than a Sustained Inflation in Preterm Lambs. *American Journal of Respiratory and Critical Care Medicine (AJRCCM) – Am J Respir Crit Care Med.* 2019 Feb 7. doi: 10.1164/rccm.201807-1397OC (**Editorialized**). **I.F. 16,494**
 25. CE Campiglio, M Villonio, **RL Dellacà,** F Mosca, L Draghi. An injectable, degradable hydrogel plug for tracheal occlusion in congenital diaphragmatic hernia (CDH). *Materials Science & Engineering C - In press* <https://doi.org/10.1016/j.msec.2019.01.047> **I.F. 5,080**
 26. Tingay DG, Togo A, Pereira-Fantini PM, Miedema M, McCall KE, Perkins E, Thomson J, Dowse G, Sourial M, **Dellaca RL,** Davis PG, Dargaville PA. Aeration strategy at birth influences the physiological response to surfactant in preterm lambs. *Archives of Disease in Childhood - Fetal and Neonatal Edition – doi:10.1136/archdischild-2018-316240.* **I.F. 3,953**
 27. Raffaelli G, Veneroni C, Ghirardello S, Lavizzari A, Passera S, Mosca F, Cavallaro G, **Dellacà RL.** Role of Lung Function Monitoring by the Forced Oscillation Technique for Tailoring Ventilation and Weaning in Neonatal ECMO: New Insights From a Case Report. *Front Pediatr.* 2018 Nov 1;6:332. doi: 10.3389/fped.2018.00332. eCollection 2018. PMID: 30443542 **I.F. 2,335**
 28. Pereira-Fantini PM, Byars SG, McCall KE, Perkins EJ, Oakley RB, **Dellacà RL,** Dargaville PA, Davis PG, Ignjatovic V, Tingay DG. Plasma proteomics reveals gestational age-specific responses to mechanical ventilation and identifies the mechanistic pathways that initiate preterm lung injury. *Sci Rep.* 2018 Aug 22;8(1):12616. doi: 10.1038/s41598-018-30868-x. PMID: 30135517 **I.F. 4,122**
 29. Veneroni C, Wallström L, Sindelar R, **Dellaca' RL.** Oscillatory respiratory mechanics on the first day of life improves prediction of respiratory outcomes in extremely preterm newborns. *Pediatr Res.* 2018 Aug 4. doi: 10.1038/s41390-018-0133-6. [Epub ahead of print] PMID: 30127523 **I.F. 3,123**
 30. Veneroni C, Tossici M, Zannin E, Milesi I and **Dellaca RL.** Accuracy of oscillatory pressure measured by mechanical ventilators during high frequency oscillatory ventilation in newborns. *Pediatr Pulmonol.* 2018 Jul;53(7):901-906. doi: 10.1002/ppul.24045. Epub 2018 May 10. PMID: 29746013. **I.F. 2,758**
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