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**Andrew Smith**

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## **Profile**

I am a post-doctoral researcher at the University of Milano-Bicocca. I am a highly motivated and enthusiastic student and I always work to my full potential, ensuring that the quality of my work is continuously of a high standard.

I have obtained a vast amount of experience and knowledge within the discipline of mass spectrometry imaging during my academic studies and PhD programme, focusing on an array of forensic and clinical applications. Furthermore, being part of a Marie Curie ITN has enabled me to gain extensive expertise in the dissemination of scientific results and networking. My personal work history reflects my commitment, versatility, and eagerness and this has been consistently highlighted by my mentors during the time spent within this specialist field.

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## **Education and Qualifications**

**2014-2017**                      **University of Milano-Bicocca, Monza, Italy**

PhD program in translational and molecular medicine (DIMET)

**2009-2013**                      **Sheffield Hallam University (SHU), Sheffield, UK**

Forensic and Analytical Science BSc (Hons) First Class (1<sup>st</sup>)

**2007-2009**                      **All Saints Catholic High School, Sheffield, UK**

3 A-levels grade A-C including Chemistry and Physics

**2002-2007**                      **The City School, Sheffield, UK**

12.5 GCSE's grade A\*-A including English, Maths and Science

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## **Professional Experience**

**Department of Medicine and Surgery, Clinical Proteomics and Metabolomics Unit,  
University of Milano-Bicocca (January 2017-Current)**

**Position:** Post-doctoral Researcher

**Project Title:** High spatial resolution MALDI-Imaging: the detection of protein signatures for the comprehension and classification of Membranous Nephropathy

**Department of Medicine and Surgery, Clinical Proteomics and Metabolomics Unit,  
University of Milano-Bicocca (January 2014-December 2016)**

**Position:** Early stage researcher within the Marie-Curie funded iMode-CKD project

**Project Title:** MALDI-MSI in the study of glomerulonephritis: Possible molecular indicators of CKD progression

**Biomedical Research Centre, Sheffield Hallam University (August 2011-August 2012)**

**Position:** Student researcher within the mass spectrometry research group

## Relevant Key Skills

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### Experimental

- Sample preparation for MALDI-MSP and subsequent MALDI-TOF/TOF analysis
- Extensive experience in sample preparation for tissue MALDI-MSI (proteomics and small molecules)
- Optimisation of sample preparation protocol for fresh-frozen clinical samples
- Optimisation of sample preparation protocol for FFPE clinical samples
- Extensive experience with the Bruker UltrafleXtreme MALDI-TOF/TOF and rapifleX MALDI TissueTyper™ instruments

### IT

- Proficient in the use of Microsoft Office Suite
- MALDI-MSI data analysis software – ClinProTools 3.0, flexImaging 4.1/5.0, flexControl 3.0/4.0, flexAnalysis, SCiLS Lab, mMass, Markerview and BioMap 3.75 software

### Language

- English (Native) and Italian (Intermediate)

## Additional Training

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**April 2016, Campora San Giovanni, Italy.** NATO Science for Peace and Security Programme related to "Molecular Technologies for Detection of Chemical and Biological Agents"

**February 2016, San Gerardo Hospital, Monza, Italy.** Three day hands-on training course in renal histopathology

**March 2015 - April 2015, University of Milano-Bicocca, Italy.** Imaging technologies

**November 2015 - January 2016, University of Milano-Bicocca, Italy.** Experimental animal models

**June 2014, Université Toulouse - Jean Jaurés, France.** Two day practical course of scientific writing and communication

## Teaching Activities

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**October 2017 to present, University of Milano-Bicocca.** Module leader for the "Chemistry and Propaedeutic Biochemistry" course provided to first year medicine students within the International Medical School

**November 2014 to present, University of Milano-Bicocca.** Co-tutor for the theses of Masters Students enrolled within the course of Medical Biotechnology

**April 2017, May 2016 and September 2015, University of Milano-Bicocca, in collaboration with the Italian Society of Chemistry.** Provided both theoretical and practical teaching at three schools, organised in collaboration with the Italian Society of Chemistry, for the purpose of providing an introduction to MALDI-MS Imaging

**January 2017, University of Milano-Bicocca.** Provided lectures to Medical Biotechnology students, within the School of Medicine, focusing on data elaboration of MALDI-MS Imaging data and clinical applications of the technique

**January 2016 and January 2015, University of Milano-Bicocca.** Provided lectures to Medical Biotechnology students, within the School of Medicine, focusing on the clinical applications of MALDI-MS Imaging

**December 2016, December 2015 and December 2014, University of Milano-Bicocca.** Provided teaching support in the lab activities of Medicine and Surgery students within the Propaedeutic Sciences (Chemistry and propaedeutic biochemistry) module

**December 2015, The FIRC Institute of Molecular Oncology.** Provided lecture to PhD students on the concepts and clinical applications of MALDI-MSI

## Professional Achievements

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**April 2018, Quarta Riunione dei Giovani Biochimici dell'Area Lombarda.** Awarded the prize for best poster

**October 2017, Mass Spectrometry Division of SCI.** Winner of the 2017 award for young researchers in the field of mass spectrometry

Selected by the European COST Action for attendance at the following training courses:

- 1) December 2013, Biomedical Research Centre, Sheffield Hallam University.** “On-Tissue Digestion”, organised by Prof. M. Clench.
- 2) September 2014, Biomedical Research Centre, SHU.** “Imaging Mass Spectrometry Data Analysis”, organised by Prof. M. Clench

**June 2013, SciFest Conference, Sheffield Hallam University.** Awarded the ‘Best Presented Poster’ and the ‘Forensic Science Society – Best Poster’ awards

## Publications

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- 1) Stella M, Chinello C, Cazzaniga A, Smith A, Galli M, Piga I, Grasso A, Grasso M, Del Puppo M, Varallo M, Bovo G, Magni F. **“Histology-guided proteomic analysis to investigate the molecular profiles of clear cell Renal Cell Carcinoma grades”.** *Journal of Proteomics*. 2018. doi: 10.1016/j.jprot.2018.04.028.
- 2) Chinello C, Stella M, Smith AJ, Bovo G, Varallo M, Ivanova M, Denti V, Grasso M, Grasso A, Del Puppo M, Zaravinos A, Magni F. **“Proteomics of liquid biopsies: Depicting RCC filtration into the renal vein by MS analysis of urine and plasma”.** *Journal of Proteomics*. 2018. doi: 10.1016/j.jprot.2018.04.029.
- 3) Smith A, Galli M, Piga I, Denti V, Stella M, Chinello C, Fusco N, Leni D, Manzoni M, Roversi G, Garancini M, Pincelli AI, Cimino V, Capitoli G, Magni F, Pagni F. **“Molecular signatures of medullary thyroid carcinoma by matrix-assisted laser desorption/ionisation mass spectrometry imaging”.** *Journal of Proteomics*. 2018. 1874-3919(18)30122-2.
- 4) Smith A, Piga I, Galli M, Stella M, Denti V, Del Puppo M, Magni F. **“Matrix-Assisted Laser Desorption/Ionisation Mass Spectrometry Imaging in the Study of Gastric**

- cancer**". *International Journal of Molecular Sciences*. 2017. Dec;18(12), 2588; doi:10.3390/ijms18122588.
- 5) L'Imperio V, Bruno I, Rabach I, Smith A, Chinello C, Stella M, Magni F, and Pagni F. **"Histoproteomic characterization of localized cutaneous amyloidosis in X-linked reticulate pigmentary disorder"**. *Skin Pharmacology and Physiology*. 2017. Apr;30(2):90-93.
  - 6) Galli M, Pagni F, De Sio G, Smith A, Chinello C, Stella M, L'Imperio V, Manzoni M, Garancini M, Massimini D, Mosele N, Mauri G, Zoppis I, and Magni F. **"Proteomic profiles of thyroid tumors by Mass Spectrometry-Imaging on Tissue Microarrays"**. *BBA Proteins and Proteomics*. 2017. Jul;1865(7):817-827.
  - 7) Smith A, L'Imperio V, Ajello E, Ferrario F, Mosele N, Stella M, Galli M, Chinello C, Pieruzzi F, Spasovski G, Pagni F, and Magni F. **"The putative role of MALDI-MSI in the study of Membranous Nephropathy"**. *BBA Proteins and Proteomics*. 2017. Jul;1865(7):865-874.
  - 8) Chinello C, L'Imperio V, Stella M, Smith A, Bovo G, Grasso A, Raimondo F, Pitto M, Pagni F, and Magni F. **"The proteomic landscape of renal tumors"**. *Expert Review of Proteomics*. 2016. Dec;13(12):1103-1120.
  - 9) Galli M, Zoppis I, Smith A, Magni F, Mauri G. **"Machine learning approaches in MALDI-MSI: clinical applications"**. *Expert Review of Proteomics*. 2016 Jul;13(7):685-96. doi: 10.1080/14789450.2016.1200470. Epub 2016 Jun 23.
  - 10) Manzoni M, Bono F, Smith A, Cavenaghi G, Garavello W, and Pagni F. **"Thyreoglossal Duct Cyst with Evidence of Solid Cell Nests and Atypical Thyroid Follicles"**. *Endocrine Pathology*. 2016. Jun;27(2):175-7.
  - 11) Pagni F, De Sio G, Garancini M, Scardilli M, Chinello C, Smith AJ, Bono F, Leni D, Magni F. **"Proteomics in thyroid cytopathology: relevance of MALDI-Imaging in distinguishing malignant from benign lesions"**. *Proteomics*. 2016. 2016. Jun;16(11-12):1775-84.
  - 12) Smith A, L'Imperio V, De Sio G, Ferrario F, Scalia C, Dell'Antonio G, Pieruzzi F, Pontillo C, Filip S, Markoska K, Granata A, Spasovski G, Jankowski J, Capasso G, Pagni F, and Magni F. **" $\alpha$ -1-antitrypsin detected by MALDI-Imaging in the study of glomerulonephritis: its relevance in chronic kidney disease progression"**. *Proteomics*. 2016. Jun;16(11-12):1759-66.
  - 13) L'Imperio V, Smith A, Chinello C, Pagni F, and Magni F. **"Proteomics and glomerulonephritis: A complimentary approach in renal pathology for the identification of chronic kidney disease-related markers"**. *Proteomics Clinical Applications*. 2016. Apr;10(4):371-83.
  - 14) Reed H, Stanton A, Wheat J, Kelley J, Davis L, Rao W, Smith A, Owen D, and Francese S. **"The Reed-Stanton press rig for the generation of reproducible fingerprints: Towards a standardised methodology for fingerprint research"**. *Science and Justice*. 2016. Jan;56(1):9-17.
  - 15) Pagni F, Galimberti S, Galbiati E, Rebora P, Pietropaolo V, Pieruzzi F, Smith AJ, and Ferrario F. **"Tubulointerstitial lesions in lupus nephritis: international multicentre study in a large cohort of patients with repeat biopsy"**. *Nephrology*. 2016. Jan;21(1):35-45.
  - 16) Chinello C, Cazzaniga M, De Sio G, Smith AJ, Grasso A, Rocco B, Signorini S, Grasso M, Bosari S, Zoppis I, Mauri G, and Magni F. **"Tumor size, stage and grade alterations of urinary peptidome in RCC"**. *Journal of Translational Medicine*. 2015. Oct;13:332.
  - 17) Liu X, Chinello C, Musante L, Cazzaniga M, Tataruch D, Calzaferri G, Smith A, De Sio G, Magni F, Zou H, and Holthofer H. **"Intraluminal proteome and peptidome of human urinary extracellular vesicles"**. *Proteomics Clinical Applications*. 2015. Jun;9(5-6):568-73.

- 18) Pagni F, L'Imperio V, Bono F, Garancini M, Roversi G, De Sio G, Galli M, Smith AJ, Chinello C, and Magni F. **"Proteome analysis in thyroid pathology"**. *Expert review of Proteomics*. 2015. Aug;12(4):375-90.
- 19) De Sio G, Smith AJ, Galli M, Garancini M, Chinello C, Bono F, Pagni F, and Magni F. **"A MALDI-Mass Spectrometry Imaging method applicable to different formalin-fixed paraffin-embedded human tissues"**. *Molecular Biosystems*. 2015. Jun;11(6):1507-14.
- 20) Chinello C, Cazzaniga M, De Sio G, Smith AJ, Gianazza E, Grasso A, Rocco F, Signorini S, Grasso M, Bosari S, Zoppis I, Dakna M, van der Burgt YE, Mauri G, and Magni F. **"Urinary signatures of Renal Cell Carcinoma Investigated by Peptidomic Approaches"**. *PLOS ONE*. 2014. Sep 9;9(9):e106684.
- 21) Pagni F, Jaconi M, Delitala A, Garancini M, Maternini M, Bono F, Giani A, Smith A; San Gerardo Hospital collaborators group. **"Incidental Papillary Thyroid Carcinoma: Diagnostic findings in a Series of 287 Carcinomas"**. *Endocrine Pathology*. 2014. Sep;25(3):288-96.
- 22) Pagni F, Mainini V, Garancini M, Bono F, Vanzati A, Giardini V, Scardilli M, Goffredo P, Smith AJ, Galli M, De Sio G, and Magni F. **"Proteomics for the diagnosis of thyroid lesions: preliminary report"**. *Cytopathology*. 2014. Oct;26(5):318-24.

## Book publications

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- 1) Smith A, L'Imperio V, Pangi F, and Magni F. **"Tissue MALDI-Imaging"**. Integration of *omics* approaches and systems biology for clinical applications. *Wiley*. 2018.156-172.
- 2) Mosele N, Smith A, Galli M, Pagni F, and Magni F. **"MALDI-MSI Analysis of Cytological Smears: The Study of Thyroid Cancer"**. *Imaging Mass Spectrometry Methods and Protocols. Methods in Molecular Biology, Springer*. 2017.1618;37-47.
- 3) Smith A, Galli M, L'Imperio V, Pagni F, and Magni F. **"MALDI-MS Imaging in the study of Glomerulonephritis"**. *Imaging Mass Spectrometry Methods and Protocols. Methods in Molecular Biology, Springer*. 2017.1618;85-94.

## Oral Presentations

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- 1) **"High spatial resolution MALDI-MSI in the search for proteomic indicators of response to therapy in Membranous Nephropathy"**. *Quarta Riunione dei Giovani Biochimici dell'Area Lombarda*, Gargnano, Italy, 16<sup>th</sup> April 2018.
- 2) **"MALDI-MS Imaging of glomerular diseases: A possible diagnostic role?"**. *5<sup>th</sup> MS Food Day*, Bologna, Italy, 11<sup>th</sup> October 2017.
- 3) **"Molecular signatures of medullary thyroid carcinoma by MALDI-MSI"**. *OurCon V*, Doorn, Netherlands, 25<sup>th</sup>-28<sup>th</sup> September 2017.
- 4) **"Proteomics in glomerulonephritis: Mass Spectrometry Imaging"**. *1st International Milan Nephrology course*, Milan, Italy, 22<sup>nd</sup> September 2017.
- 5) **"MALDI-MS Imaging of glomerular diseases: A possible diagnostic role?"**. *SCI - Il TOF compie 70 anni!*, Milan, Italy, 1<sup>st</sup> December 2016.
- 6) **"The putative role of MALDI-MSI in the study of Membranous Nephropathy"**. *OurCon IV Imaging Mass Spectrometry Conference*, Ustron, Poland, 18<sup>th</sup> – 21<sup>st</sup> October 2016.
- 7) **"Molecular indicators of the progression of chronic kidney disease: a MALDI-Imaging approach in the study of glomerulonephritis"**. *NATO SPS ASI 984915*, Campora San Giovanni, Italy, 9<sup>th</sup> – 16<sup>th</sup> April 2016.
- 8) **"Sample preparation considerations in MALDI-MS Imaging: What is your goal?"**. *5th Proteonet Meeting*, Milan, Italy, 6<sup>th</sup> April 2016.

- 9) **"Molecular indicators of the progression of chronic kidney disease: a MALDI-Imaging approach in the study of glomerulonephritis"**. *OurCon III Imaging Mass Spectrometry Conference*, Pisa, Italy, 27<sup>th</sup> – 29<sup>th</sup> Oct 2015.
- 10) **"MALDI-MSI in the study of glomerulonephritis"**. *Quarterly iMode-CKD public network meetings*, 2014-2016.

### Poster Presentations

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- 1) **"Molecular signatures of medullary thyroid carcinoma by MALDI-MSI"**. *OurCon V, Doorn, Netherlands, 25<sup>th</sup>-28<sup>th</sup> September 2017*.
- 2) **"The putative role of MALDI-MSI in the study of Membranous Nephropathy"**. *OurCon IV Imaging Mass Spectrometry Conference*, Ustron, Poland, 18<sup>th</sup> – 21<sup>st</sup> October 2016.
- 3) **" $\alpha$ -1-antitrypsin detected by MALDI-Imaging in the study of glomerulonephritis: its relevance in chronic kidney disease progression"**. *NATO SPS ASI 984915*, Campora San Giovanni, Italy, 9<sup>th</sup> - 16<sup>th</sup> Apr 2016.
- 4) **"Towards obtaining molecular signatures of glomerulonephritis by MALDI-MSI: Preliminary evidence"**. *IX Annual EuPA Congress*, Milan, 23<sup>rd</sup> - 26<sup>th</sup> June 2015.
- 5) **"Towards obtaining molecular signatures of glomerulonephritis by MALDI-MSI: Preliminary evidence"**. *ERA-EDTA 52nd Congress*, London, 28<sup>th</sup> - 31<sup>st</sup> May 2015.
- 6) **"MALDI mass spectrometry imaging in the analysis of primary glomerulonephritis"**. *IX ItPA Congress*, Naples, 24<sup>th</sup> - 27<sup>th</sup> June 2014.

### References

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Available upon request