CURRICULUM VITAE ET STUDIORUM
2022

ARMANDO BARTOLAZZI
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SHORT SUMMARY
(SEE SPECIFIC PORTFOLIOS FOR DETAIL)

ARMANDO BARTOLAZZI
(ANAGRAFICA E RIASSUNTO DATI SALIENTI)

Name: ARMANDO BARTOLAZZI
Date of Birth: 11th February 1961;
Address: Dept. of Pathology St. Andrea University Hospital, piano –3; via di Grottarossa 1035 – 00189 Rome, Italy

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CURRENT POSITION

- **Since May 2023:** L.I.L.T. delegate for the European Cancer League's activities

- Since November 2019 today: Elected President of the National Scientific Committee of L.I.L.T. (Lega Italiana per la Lotta ai Tumori)

- Since November 2001-Today:
Dirigente First Level (Prof. of Pathology), ***with high specialized profile named "coordination for histological diagnosis of skin, thyroid and head-neck cancers"(IPAS 1- 40 punti)*** ,
St. Andrea University Hospital, Rome, Italy (***Permanent Position full-time)*** (via di Grottarossa 1035 -00189 Rome, Italy, Public Institution).

- Since 2018 Research Associate Department of Oncology-Pathology Cancer Center Karolinska, Karolinska Hospital, Stockholm Sweden. (CCK R8:04 – 17176 Solna, Sweden - Public Institution and University Medical School) –

PREVIOUS POSITIONS

June 2018 – August 2019:- **Undesecretary of State, Italian Ministry of Health**

May 1999- November 2001: Research Associate and P.I. at Department of Oncology-Pathology, Cellular and Molecular Tumor Pathology, ***Cancer Centre Karolinska, CCK R8:04 Karolinska Hospital, Stockholm,*** Sweden (Public Cancer Institution and University Hospital)

December 1993-01 Assistant Professor of Pathology (Dirigente I livello), Department of Pathology ***National Cancer Institute Regina Elena, IRCCS,*** viale Regina Elena 291 - 00100 Rome, Italy (*Permanent position). (National Cancer Institute)* ***Permanent Position full-time)***

January 1993-June 94: - Post-doctoral fellow, at the Pathology Research Laboratory, ***Department of Pathology, Massachusetts General Hospital, Harvard Medical School, Boston MA***, (USA). (Prof. Ivan Stamenkovic Lab.) *(Public /Privat Institution, Harvard University Boston- USA)* ***Position full-time***

Since 1994- November 2001**:** P.I. of an independent research group at the NCI Regina Elena of Rome (IRCCS- IFO) and presently at St. Andrea University Hospital of Rome, focused **on Cancer Research and Translational Research in Pathology and Oncology**. (National Cancer Institute) – via delle Messi D'Oro Centro di Ricerca Sperimentale – 00167 Rome, Italy (***Position full-time)***

1988-92: Research fellow at the Immunology Laboratory, National Cancer Institute, Regina Elena of Rome (IRCCS- IFO), Italy. PhD Program in Clinical and Experimental Oncology

(Prof. P.G. Natali lab.) via delle Messi D'Oro Centro di Ricerca Sperimentale – 00167-Rome, Italy *(National Cancer Institute) (full-time)*

EDUCATION

1999- Specialist Degree in Histology and Anatomic Pathology (1994-1999), with final thesis and Diploma (*summa cum laude).* University "La Sapienza" of Rome, Italy (Title: Galectin-3 and Thyroid Cancer). Rome 24-11-1999

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January 1993-June 1994: - Post-Doctoral fellow, at the Pathology Research Laboratory, Department of Pathology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, (USA). (Ivan Stamenkovic Lab.) ***(Position full-time)***

1991: Specialist Degree in Clinical and Experimental Oncology with Ph.D. program (1987-1991) with final dissertation and Diploma (*summa cum laude*). National Cancer institute Regina Elena Rome, IRCCS and University "La Sapienza", Rome, Italy (Title: Production and characterization of monoclonal antibodies to Vla-3 integrin).- Rome 28-10-1991

1987-1988: Internship in Internal Medicine, I° Clinica Medica
Policlinico Umberto I, University "La Sapienza", Rome, Italy.

1987: M.D. license, University "La Sapienza", Rome, Italy. - Rome 15-10-1987.

1987: M.D. Degree University "La Sapienza", Rome, Italy, (*Summa cum laude*). (Thesis: Epidemiology of Endometrial Cancer in Italy. Prof. Giuseppe Atlante) Rome 10-4-1987

CLINICAL COMPETENCE AND FORMAL TRAINING
(Completed clinical training documented through specialist competence).

Number of years as specialist, and experience in inpatient and outpatient care.
The applicant worked since 1991 as specialist in Oncology in particular in the area of diagnosis and follow-up of cancer patients (Outpatient care).

From December 1993 to October 2001: Assistant Professor of Pathology at the National Cancer Institute Regina Elena of Rome IRCCS (*permanent position*).
(40.000 histological slides/year, 9000 intra-operative diagnosis/year for five pathologists at the Department - Two years work experience were matured at the Cytology Department (Inpatient and outpatient care)

January 1997- March 99: designed pathologist for the multi-disciplinary clinical and experimental working group on Breast Cancer (600 cases/year) at the National Cancer Institute, Regina Elena of Rome. (Inpatient and outpatient care).

January 1997- March 99: designed pathologist for the multi-disciplinary clinical and experimental working group on Colon Cancer (180 cases/year) at the National Cancer Institute, Regina Elena of Rome (Inpatient and outpatient care).

January 1997- March 99: designed pathologist for the multi-disciplinary clinical and experimental working group on Melanoma (110 cases/year), at the National Cancer Institute, Regina Elena of Rome (Inpatient and outpatient care).

January 1996- March 99: designed pathologist for the autoptic service at the National Cancer Institute, Regina Elena of Rome.

January 1996- December 1998: Consultant Pathologist at the General Hospital S.S. Salvatore, (Regional Hospital), USL RM/25 Rome, Italy (Inpatient and outpatient care; 5155 histological diagnosis, personally signed).

January 2001: Consultant Pathologist for melanoma at Dept. of Oncology-Pathology Karolinska Hospital, Stockholm, Sweden.

Since November 2001-present: Dirigente Primo Livello (Professor of Pathology) Sant' Andrea University Hospital, II° Faculty of Medicine, University Sapienza, Rome, Italy (about 12.000 histological cases / year)), with high specialized profile in Thyroid Pathology; starting from 03/2019 - IPAS-1 ***"coordination for histological diagnosis of skin, thyroid and head-neck cancers"(IPAS 1- 40 points)*** (***Permanent Position full-time).***

Experience of on-call services

30 years experience of on-call services for intra-operative diagnosis (histological diagnosis on frozen tissue sections) (NCI Regina Elena and Sant' Andrea University Hospital, Rome, Italy).

SPECIAL CLINICAL COMPETENCE/PROFILE AREA

- Tumor Pathology (subspecialty expertise in Head and Neck Cancer, Thyroid cancer and Skin Cancer including Melanoma).
-Diagnosis in Oncology (clinical and histopathological diagnosis, immunodiagnosis, molecular diagnosis).
-Intra-operative histological diagnosis.
- Autoptic diagnosis.
-Clinical management of cancer patients during the diagnostic phase and follow-up.

*** IMPORTANT:**
The following table shows the results of the cumulative diagnostic activity at the Department of Pathology, St. Andrea Hospital, performed during the last 14 years (definitive diagnostic reports signed by the applicant). This table has been downloaded from the Official WIN-SAP program archive of the Institute.

Years 2005-2022 (January 1st; December 31st)

year	Diagnostic reports signed By A.B.	Total diagnostic activity at the Department	
2005	2417	11187	
2006	2793	12508	
2007	1912	12830	
2008	2191	14139	
2009	2551	14904	
2010	2600	14752	
2011	2709	15191	
2012	2961	15845	
2013	3062	16191	
2014	2844	16373	
2015	2591	15903	
2016	2455	12771	
2017	2452	13215	
2018*	1270	13821	* Undersecretary of State Italian Ministry of Health (by June 2018-Sept 2019)
2019* 2020-2022	0 5300	 24.000	
Total diagnostic activity	**40108**	**223.630**	

In this work environment play seven senior pathologists and four young pathologists in training (residents in surgical pathology).

* During 2018-2019 Undersecretary of State Ministry of Health

SPECIAL EXPERIMENTAL COMPETENCE / PROFILE AREA

-Translational research in Oncology and Pathology: 30 years of experience in production, characterization and clinical applications of monoclonal antibodies directed to tumor associated antigens. Some of these reagents are routinely used in several National and International Institutions for immuno-diagnosis, differential diagnosis of neoplastic diseases, for characterizing cancers of unknown origin and for evaluating intra- and post-operatively the minimal residual disease.
The recently developed ***galectin-3 thyrotest for the preoperative characterization of thyroid nodules*** (commercially available) has been developed, validated at international level by the applicant and translated in the clinical setting. The method is ***used worldwide for diagnosis of thyroid cancer*** (see specific scientific portfolio for details).

The Department of Pathology and Immunology of the NCI Regina Elena of Rome, in which the applicant worked for many years, has been the datum point for production, characterization and clinical application of mAbs for both National and International Institutions and Research Companies. In this work environment the applicant contributed to develop and organize one of the first human tissue bank and cell culture bank in Italy (reference Prof. Pier Giorgio Natali, past Scientific Director of the NCI of Rome and Head of the Immunology Laboratory.

COMMISSIONS OF TRUST
1998-2001, Elected member of the Scientific and Technical Committee (STC) at the National Cancer Institute Regina Elena, IRCCS, Rome. Italy.

OTHER MERITS

Credits from the Italian Minister of Public Health, Work and Social Politics for the Clinical and Scientific activities on Thyroid Cancer, Rome, February 13th, 2009

Selected by AIRC (Italian Association for Cancer Research) as one of the best 12 researchers providing significative scientific contribution in the Cancer field for the year 2008 ***(Repubblica November 4th , 2008; Repubblica e Corriere della Sera July 28th, 2008).***

-Since year 2000: Member of the Commission of experts for evaluation of EU grants applications (Ref: EE1998 1B02438) (on call).

- Since 2001 Life Member of UICC "International Union against Cancer"

- Since November 2019: Elected President of the National Scientific Committee of L.I.L.T. (Lega Italiana per la Lotta ai Tumori)

Other Merits and Qualifications

National Abilitation Full-Professor Anatomic Pathology-Surgical Pathology MED 08 (Bando 2012)

National Abilitation Full-Professor General Pathology MED 04 (Bando 2012)

Thyroid Cancer Expert nomination: World Health Organization (Lyon cedex DB, France) – WHO expert for Thyroid Cancer , June 30, 2015

From February 2015 listed on TIS –Top Italian Scientists - Via-Academy http://www.via-academy.org

September 2018, September 2019: President of the 68th session of the WHO regional Committee for Europe;

June 2018- August 2019 – Undersecretary of State Italian Ministry of Health

- GURU: (Deleghe)
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- Art. 1.
- 1**. Il Sottosegretario di Stato prof. Armando Bartolazzi è delegato alla trattazione e alla firma degli atti relativi: a) all'attività di monitoraggio e di valutazione dei risultati nel campo della ricerca scientifica e tecnologica in materia sanitaria;**

- b) alle materie relative all'organizzazione delle attività connesse alla valutazione delle professioni sanitarie del Servizio sanitario nazionale e relativo contenzioso;

- c) alle competenze in materia di relazioni tra il Ministero della salute e le organizzazioni sindacali, ove il Ministro non intenda attendervi personalmente;
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- d) alla tenuta dei rapporti tra il Servizio sanitario nazionale e le università in materia di personale delle aziende ospedaliero-universitarie;

- e) al coordinamento delle attività relative all'organizzazione del 68° Comitato regionale dell'Ufficio regionale per l'Europa dell'Organizzazione mondiale della sanità;

- f) ai procedimenti concernenti forme e condizioni particolari di autonomia.
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- 2. Al fine di assicurare il coordinamento tra le attività espletate in base alla presente delega e gli obiettivi, i programmi e i progetti deliberati dal Ministro, il Sottosegretario
- di Stato prof. Armando Bartolazzi opera in costante raccordo con il ministro stesso.

- 3. Nelle materie delegate, il Sottosegretario di Stato prof. Armando Bartolazzi firma i relativi atti e provvedimenti; tali atti sono inviati alla firma per il tramite dell'Ufficio di Gabinetto.

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- Art. 2.

- 1. Il Sottosegretario di Stato prof. Armando Bartolazzi è delegato a rappresentare il Ministro presso le Camere, nel rispetto delle direttive eventualmente fornite dal ministro e sempre che quest'ultimo non ritenga di attendervi personalmente, per lo svolgimento di interrogazioni a risposta orale e per ogni altro intervento che si renda necessario nel corso dei lavori parlamentari con riferimento alle materie di cui all'art. 1 e a ogni altra materia che il Ministro intenda di volta in volta affidare al medesimo sottosegretario di Stato.
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- 2. Con riferimento alle materie di cui all'art. 1, al Sottosegretario di Stato prof. Armando Bartolazzi è delegata: a) la partecipazione alle Conferenze unificata, Stato-regionie Stato-città e autonomie locali, salvo che il ministro non ritenga di attendervi personalmente;
- b) la firma delle risposte alle interrogazioni a risposta scritta; c) la firma delle richieste di parere al Consiglio di Stato e ad altri organi istituzionali su questioni che non rivestono carattere generale o di principio.

REFEREE ACTIVITY
The Lancet
Journal of Experimental Medicine
Cancer Research
Journal of Clinical Oncology
International Journal of Cancer
American Journal of Pathology
European Journal of Cancer
British Journal of Cancer
British Journal of Dermatology
PLoS One
Thyroid
Journal of Endocrinology Investigation
Molecular Endocrinology
Histopathology
Journal Biological Chemistry
Journal of the American Academy of Dermathologists (JAAD)
International Journal of Molecular Science
Others…..

Rare Tumors **(Editorial Board)**

International Journal of Molecular Sciences (**Guest Editor**- special issue) 2017-2018 and 2018-2019

- **PATENTS**

Anticorpi monoclonali anti-galectina-3 radio marcati per visualizzazione e radio ablazione in vivo di tumori galectina-3 positivi

Inventor: Armando Bartolazzi

Co-inventors: Francesco Scopinaro; Alberto Signore; Rome February 2nd 2008, Patent. N. RM2008A000097

Grants: Since 1994 the applicant was granted with about 2.369.000,00 euro for cancer research projects, from several National and International Agencies .

PUBLICATIONS

Author of 124 Scientific publications on International Journals

Total amount of quotations in scientific publications and a list of the top 20 papers

Total citations: 6387 Fonte PubMed and Google Scholar ***H-index: 41 (2022)***
4395 Fonte Scopus ***H-index: 35 (2022 da aggiornare)***

TOP 20

1. **Bartolazzi, A.,** Mottolese, M., Vocaturo, A., Bigotti, A., Vocaturo, G., Atlante, G., Prat, M and Natali, PG. (1991). Expression of CAR-3 and TAG-72 macromolecules in normal and transformed endometrium. Potential diagnostic application in postmenopausal age. Cancer Res. 51, pp. 3001-3005.

2. **Bartolazzi, A**., Peach, R., Aruffo, A., and Stamenkovic, I. (1994). CD44-hyaluronate interaction is implicated in the regulation of tumor growth. J. Exp. Med. 180, pp. 53-66.

3. **Bartolazzi, A**., Jackson, D., Bennett, K., Aruffo, A., Dickinson, R., Shields, J., Whittle, N. and Stamenkovic, I. (1995). Regulation of growth and dissemination of a human lymphoma by CD44 splice variants. J. Cell Sci. 108, pp. 1723-1733.

4. **Bartolazzi, A**., Nocks, A., Aruffo, A., Spring, F., and Stamenkovic, I. (1996). Glycosylation of CD44 is implicated in CD44-mediated cell adhesion to hyaluronan. J. Cell Biol. 132, pp. 1199-1208.

5. Martegani, M.P., Del Prete, F., Gasbarri, A., Natali, P.G., and **Bartolazzi, A**. (1999). Structural variability of CD44v molecules and reliability of immunodetection of CD44 isoforms, using mAbs specific for CD44 variant exon products. Am. J. Pathol. 154, pp. 291-300.

6. Gasbarri, A., Martegani, M.P., Del Prete, F., Lucante, T. Natali, P.G. and **Bartolazzi, A.** (1999): Galectin-3 and CD44v6 isoforms in the pre-operative evaluation of thyroid nodules. J. Clin. Oncol.17, pp. 3494-3502.

7. **Bartolazzi A**. (2000): Improving accuracy of cytology for nodular thyroid lesions The Lancet 355:1661-1662.

8. Girnita, L., Girnita, A., Brodin, B., Xie, Y., Nilsson, G., Lundeberg, J., Wejde, J., **Bartolazzi, A**., Wiman, C., and Larsson, O. (2000): Increased expression of Insulin-like

growth factor-1 receptor (IGF-1R) in malignant cells expressing aberrant p53. Functional impact. Cancer Res. 60:5278-5283.

9. **Bartolazzi, A**., Gasbarri, A., Papotti, M., Bussolati, G., Lucante, T., Khan, A., Inohara, H., Marandino, F., Orlandi, F., Nardi, F., Vecchione, A., Larsson, O., and the Thyroid Cancer Study Group. (2001). Application of an immunodiagnostic method for improving the preoperative diagnosis of nodular thyroid lesions. The Lancet 357: 1644-50.

10. Sjolin H., Tomasello E., Mousavi-Jazi M., **Bartolazzi A**., Vivier E., Karre K., and Cerboni C. (2002): Pivotal role of KARAP/DAP12 adaptor molecule in the natural killer cell-mediated resistance to murine cytomegalovirus infection. J. Exp. Med. 195:825-834.

11. Xie Y., Skytting B., Nilsson G., Gasbarri A., Haslam K., **Bartolazzi A**., Brodin B., Mandahl N., and Larsson O. (2002): SYT-SSX fusion gene is critical for expression of cyclin D1 in synovial sarcoma cells. Cancer Res. 62:3861-3867.

12. Girnita A, Girnita L, del Prete F, **Bartolazzi A**, Larsson O, Axelson M. (2004). Cyclolignans as inhibitors of the insulin-like growth factor-1 receptor and malignant cell growth. Cancer Res. 64:236-42.

13. Papotti M, Rodriguez J, Pompa RD, **Bartolazzi A**, Rosai J. (2005).
Galectin-3 and HBME-1 expression in well-differentiated thyroid tumors with follicular architecture of uncertain malignant potential. Mod Pathol. 18:541-6.

14. B. Cecchinelli, L. Lavra, C. Rinaldo, S. Iacovelli, A. Gurtner, A. Gasbarri, A. Ulivieri, F. del Prete, M. Trovato, G Piaggio, **A. Bartolazzi,*** S. Soddu, & S. Sciacchitano. (2006). Repression of the antiapoptotic molecule Galectin-3 by homeodomain-interactin protein kinase 2-activated p53 is required for p53-induced apoptosis. Mol Cell Biol 26:4746-57. *(* Corresponding author*)

15. **Bartolazzi A**, Orlandi F, Saggiorato E, Volante M, Arecco F, Rossetto R, Palestini N, Ghigo E, Papotti M, Bussolati G, Martegani MP, Pantellini F, Carpi A, Giovagnoli MR, Monti S, Toscano V, Sciacchitano S, Pennelli GM, Mian C, Pelizzo MR, Rugge M, Troncone G, Palombini L, Chiappetta G, Botti G, Vecchione A, Bellocco R; Italian Thyroid Cancer Study Group (ITCSG). (2008). Galectin-3-expression analysis in the surgical selection of follicular thyroid nodules with indeterminate fine-needle aspiration cytology: a prospective multicentre study. The Lancet Oncol. 9(6): 543-9. Epub 2008 May 19.

16. **Bartolazzi A**, D'Alessandria C, Parisella MG, Signore A, Del Prete F, Lavra L, Braesch-Andersen S, Massari R, Trotta C, Soluri A, Sciacchitano S, Scopinaro F. (2008). Thyroid cancer imaging in vivo by targeting the anti-apoptotic molecule galectin-3. PLoS ONE. 3(11): e3768. Epub 2008 Nov20.

17. Rinaldo C, Moncada A, Gradi A, Ciuffini L, D' Eliseo D, Siepi F, Prodosmo A, Giorgi A, Pierantoni GM, Trapasso F, Guarguaglini G, **Bartolazzi A**, Cundari E, Schininà ME,

Fusco A, Soddu S. HIPK2 controls cytokinesis and prevents tetraploidization by phosphorylating histone H2B at the midbody. Mol Cell. 2012 Jul 13;47(1):87-98. doi: 10.1016/j.molcel.2012.04.029. Epub 2012 May 31.

18. D'Alessandria C, Braesch-Andersen S, Bejo K, Reder S, Blechert B, Schwaiger M, **Bartolazzi A.** Noninvasive In Vivo Imaging and Biologic Characterization of Thyroid Tumors by ImmunoPET Targeting of Galectin-3. Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23.

19. Varasteh Z, De Rose F, Mohanta S, Li Y, Miritsch B, Scafetta G, Habenicht A, Sager HB, Glasl S, Gorpas D, Ntziachristos V, Weber WA, **Bartolazzi A(*),** Schwaiger M, D'Alessandria C. Imaging atherosclerotic plaques by targeting Galectin-3 and activated infiltrating macrophages using (^{89}Zr)-DFO- Galectin3-F(ab')$_2$ mAb. Theranostics, Jan1;11(4):1864-1876. doi: 10.7150/thno.50247. eCollection 2021.PMID: 33408786 *(*corresponding author).*

20. Maiani E, Milletti G, Nazio F, Holdgaard SG, Bartkova J, Rizza S, Lorente M, Simoneschi D, Di Marco M, Cianfanelli V, D'Acunzo P, di Leo L, Rasmussen R, Montagna C, Raciti M, De Stefanis C, Gabicagogeascoa E, Rona J, Salvador N, Pupo E, Merchut-Maya GA, Daniel CJ, Carinci M, Cesarini V, O'sullivan A, Jeong GT, Gallo A, Filomeni G, Lanzetti L, Sears RC, Hamerlik P, **Bartolazzi A**, Pagano M, Velasco G, Papaleo E, De Zio D, Mendoza AM, Locatelli F, Bartek J and Cecconi F. AMBRA1 regulates cyclin D to guard 1 S-phase entry and genomic integrity. Nature 2021, 7856: 799-803. Doi: 10.1038/s41586-021-03422-5. PMID 33854232.

Le restanti pubblicazioni internazionali possono essere visualizzate ed eventualmente scaricate direttamente in originale dal sito ufficiale PubMed
https://www.ncbi.nlm.nih.gov/pubmed
US National Library of Medicine - NIH

VEDI PORTAFOGLI SPECIFICI IN ALLEGATO

Nelle sezion seguenti del C.V. In giallo evidenziate le attività di piu stretta pertinenza con la Dermatologia

SCIENTIFIC PORTFOLIO

Approved by the Board of Research, January 1st 2008
Karolinska Institute

ARMANDO BARTOLAZZI M.D., Ph.D.

2022

2. Scientific production

124 original papers published on international scientific journals in the field of cancer research and translational research in Oncology and Pathology

Total amount of quotations in scientific publications

Total citations: 6387 Fonte PubMed and Google Scholar ***H-index: 41 (2022)***
4395 Fonte Scopus ***H-index: 35 (2022*** *needs update)*

Summary of all original scientific papers

1. Bigotti, G., Jacovelli, A., **Bartolazzi, A**., Sciarretta, F. (1987). Su tre casi di metastasi alla cervice uterina da carcinoma della mammella. Patol. Clin. Ostet. Ginec. 15, pp.238-242

2. **Bartolazzi, A**., Barbieri, R., Nastruzzi, C., Natali, PG., Gambari, R. (1989). Antitumor activity of the proteinase inhibitor Tetra-p-amidino-phenoxy-neopentane, in a nude mouse model of human melanoma. In Vivo 3, pp.383-388.

3. Natali, PG., Nicotra, MR., **Bartolazzi, A**., Coscia, N., Bigotti, A., Zardi, L. (1990) - Expression and production of tenascin in benign and malignant lesions of melanocytic lineage. Int. J. Cancer 46, pp. 586-590.

4. Kantor, RRS., Giardina, SL., **Bartolazzi, A**., Townsend, AJ., Myers, CE., Cowan, KH., Longo, DL and Natali, PG. (1991). Monoclonal antibodies to glutathione-S-transferase-□. Immunohistochemical analysis of human tissues and cancers. Int. J. Cancer 47, pp.193-201.

5. **Bartolazzi, A.,** Mottolese, M., Prat, M., Vocaturo, A., Vocaturo, G., Atlante, G and Natali, PG. (1991). Use of monoclonal antibodies in solid tumors diagnosis: Endometrial Carcinoma. Cytotechnology 5, pp.35-40.

6. Atlante, M and **Bartolazzi, A**. (1991). Considerazioni in tema di epidemiologia del carcinoma endometriale. Acta Oncologica 13, pp. 85-91.

7. **Bartolazzi, A.,** Mottolese, M., Vocaturo, A., Bigotti, A., Vocaturo, G., Atlante, G., Prat, M and Natali, PG. (1991). Expression of CAR-3 and TAG-72 macromolecules in normal and transformed endometrium. Potential diagnostic application in postmenopausal age. Cancer Res. 51, pp. 3001-3005.

8. **Bartolazzi, A**., Fraioli, R., Tarone, G and Natali, PG. (1991). Generation and characterization of the murine monoclonal antibody M-Kid 2 to Vla-3 integrin. Hybridoma 10, pp. 707-720.

9. Mariani, M., **Bartolazzi, A.,** Camagna, M., Parisi, A., Tarditi, L., Vassarotto, C. and Natali, PG. (1991). Monoclonal antibodies to a soluble metallic radioisotope chelator: development and characterization. Hybridoma 10, pp. 695-705.

10. Mottolese, M., Vocaturo, A., **Bartolazzi, A**., Vocaturo, G., Benevolo, M., Sedati, A., Atlante, G., Prat, M., Bigotti, A. and Natali, PG. (1992). Immunocytodiagnosis of atypical hyperplasia and endometrial carcinoma in post menopausal women. Int. J. Cancer 51, pp.869-872.

11. **Bartolazzi, A**., Cerboni, C., Full, C., Venturo, I., Valentini, C., Bigotti, A. and Natali, PG. (1993). Vla-3 distribution in normal and neoplastic non lymphoid human tissues. Pathol. Res. Pract 189, pp. 387-393.

12. **Bartolazzi, A**., Kaczmarek, J., Nicolo, G., Risso, AM., Tarone, G., Rossino, P., Defilippi, P. and Castellani, P. (1993). The localization of the α3β1 integrin in some common epithelial tumors of the ovary and in their normal equivalents. Anticancer Res. 13, pp. 1-12.

13. Natali, PG., Nicotra, MR., **Bartolazzi, A**., Cavaliere, R., Bigotti, A. (1993). Integrin expression in cutaneous malignant melanoma: Association of the α3β1 heterodimer with tumor progression. Int. J. Cancer 54, pp. 68-72.

14. Raponi, G., Lun, MT., Gaeta, A., Ghezzi, MC., Nazzari, C., Mancini, C., Filadoro, F., **Bartolazzi, A**., Natali, PG., Rozenberg Arska, M., Verhoef, J. (1993). Differential effect of human anti-murine polyclonal and monoclonal antisera on TNF□ production by human monocytes. J. of Chemoth. 5, pp. 317-324.

15. **Bartolazzi, A**., Cerboni, C., Nicotra, MR., Mottolese, M., Bigotti, A., and Natali, PG. (1994). Transformation and tumor progression are frequently associated with the expression of the α3β1 heterodimer in solid tumors. Int. J. Cancer 58, pp. 488-491.

16. Lun, MT, Amatucci, AM, Raponi, G, Filadoro, F, **Bartolazzi, A**, Fraioli, R, Natali, PG, Mancini, C. (1994). Murine monoclonal antibody elicited with antibiotic exposed Escherichia coli, exert protective capacity in experimental bacterial infections. J. Med. Microbiol. 41, pp. 179-183.

17. **Bartolazzi, A**., Peach, R., Aruffo, A., and Stamenkovic, I. (1994). CD44-hyaluronate interaction is implicated in the regulation of tumor growth. J. Exp. Med. 180, pp. 53-66.

18. **Bartolazzi, A.,** Cerboni, C., Flamini, G., Bigotti, A., Lauriola, L. and Natali, P.G. (1995). Expression of □3□1 integrin receptor and its ligands in human lung tumors. Int. J. Cancer 64, pp. 248-252.

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*(In bleu le pubblicazioni degli ultimi 10 anni con indicazione dell' IF e C.I.) 2023

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Papers in dermatopathology in yellow

SUMMARY OF OVERVIEW ARTICLES AND CHAPTERS IN TEXTBOOKS

Overview articles:
Bartolazzi, A. (2000): Improving accuracy of cytology for nodular thyroid lesions. The Lancet 355:1661-1662.

Bartolazzi A, Sciacchitano S, D'Alessandria C. Galectin-3: The Impact on the Clinical Management of Patients with Thyroid Nodules and Future Perspectives. Int. J. Mol. Sci. 2018 Feb 2;19(2). pii: E445. doi: 10.3390/ijms19020445. Review. PMID: 29393868

Bartolazzi A. Galectins in Cancer and Translational Medicine: From Bench to Bedside. Int J Mol Sci. 2018 Sep 27;19(10). pii: E2934. doi: 10.3390/ijms19102934. No abstract available.

Book's chapters:
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2. **Bartolazzi, A**., Mottolese, M., Prat, M., Vocaturo, A., Vocaturo, G., Atlante, G., Natali, PG. (1990). Potenziale immunodiagnostico degli AcMo AR-3 e B72.3 nel carcinoma dell'endometrio. - Atti della societa' Italiana di Ginecologia ed Ostetricia. - Class International Edition. Brescia

3. Natali, PG., Mottolese, M., Venturo, I., Salzano, M., Bartolazzi**, A**., **Perrone** Donnorso, R., Bigotti, A. (1990). Improvement of cytodiagnosis of solid tumors using a panel of monoclonal antibodies. In: Biological response modifiers. Application in clinical medicine. Indivieri, F., Puppo, F., Sudelletti, M.: Editors, pp. 314-323. Esculapio Bologna

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6. Natali, PG, **Bartolazzi, A**. (1999). : Le molecole di adesione nella fisiopatologia della crescita e della progressione del melanoma cutaneo.. *In*: Giavazzi, R., Lollini, PL., Bevilacqua, G. Invasione e metastasi Ed. da Pacini Editore; pp. 207-222.

7. **Bartolazzi, A** (2004): Thyroid Fine Needle Aspiration Cytology. In Encyclopedia of Endocrinology and Endocrine Diseases. L. Martini Editor, Academic Press San Diego, CA, USA.

8. **Bartolazzi, A** (2009):. Non-small cell lung carcinoma: EGFR gene mutations and response to gefitinib. In Methods of Cancer Diagnosis, Therapy and Prognosis. M.A. Hayat Editor, Springer 1020 pgg.

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10) A. Bartolazzi and co-authors : Follicular thyroid Cancer. ***In WHO Blue Books 4th Edition WHO Classification of Tumors of Endocrine Organs***. World Health Organization IARC (Lyon Cedex DB, France) – (2017) *****

11) A. Bartolazzi : Guest Editor of International Journal of Molecular Science; Special issue: **Galectins in Cancer and Translational Medicine 2017-2018**. Editor MDPI St Alban-Anlage 66 4a52 Basel, Switzerland (www.mdpi.com)

Short summary of the findings in the 10 most important articles published by AB in the past ten years

Articles with important implications in translational medicine (oncology and pathology)

1. Gasbarri, A., Martegani, M.P., Del Prete, F., Lucante, T. Natali, P.G. and **Bartolazzi, A.** (1999): Galectin-3 and CD44v6 isoforms in the pre-operative evaluation of thyroid nodules. J. Clin. Oncol.17, pp. 3494-3502.
In this paper the authors showed for the first time, at phenotypic and molecular level, the possibility to use the galectin-3 expression analysis in the preoperative characterization of thyroid lesions. Galectin-3 expression was demonstrated to be restricted to thyroid carcinomas whereas CD44v6 variant, a CD44 isoforms involved in tumor progression and metastatization in different tumor models (i.e. lymphoma, head and neck cancer and pancreatic carcinoma) was demonstrated to be expressed in different benign and malignant thyroid conditions, CD44v6 was expressed in all the proliferative lesions, including hyperplasia, but not in normal resting follicular thyroid cells.

2. **Bartolazzi, A**. (2000): Improving accuracy of cytology for nodular thyroid lesions. The Lancet 355 pp.1661-1662.
In this letter the author stressed, for the first time, the necessity to resolve the important clinical problem of the preoperative characterization of thyroid nodules and proposed a strategy for improving the diagnostic performance of conventional thyroid FNA-cytology, opening an interesting clinical discussion in many diagnostic laboratories worldwide.

3. Girnita, L., Girnita, A., Brodin, B., Xie, Y., Nilsson, G., Lundeberg, J., Wejde, J., **Bartolazzi, A**., Wiman, C., and Larsson, O. (2000): Increased expression of Insulin-like growth factor-1 receptor (IGF-1R) in malignant cells expressing aberrant p53. Functional impact. Cancer Res. 60:5278-5283.
We investigated the functional impact of p53 on insulin-like growth factor I receptor (IGF-IR) expression in malignant cells. Using the BL-41tsp53-2 cell line, a transfectant carrying temperature-sensitive (ts) p53 and endogenous mutant p53 (codon 248), we demonstrated a drastic down-regulation of plasma membrane-bound IGF-IRs on induction of wild-type p53. However, a similar response was obtained by treatment of BL-41tsp53-2 cells expressing mutant ts p53 with a p53 antisense oligonucleotide. Thus, even if the negative effect of wild-type p53 predominates under a competitive condition, these data indicate that mutant p53 may be important for up-regulation of IGF-IR. To further elucidate this issue, three melanoma cell lines (BE, SK-MEL-5, and SK-MEL-28) that over expressed p53 were investigated. The BE cell line has a "hot spot" mutation (codon 248) and expresses only codon 248-mutant p53. SK-MEL-28 has a point mutation at codon 145. SK-MEL-5 cells did not exhibit any p53 mutations, but the absence of p21Waf1 expression suggested functionally aberrant p53. Our data suggest that interaction with Mdm-2 may underlie p53 inactivation in these cells. Using p53 antisense oligonucleotides, we demonstrated a substantial down-regulation of cell surface expression of IGF-IR proteins in all melanoma cell lines after 24 h. This was paralleled by decreased tyrosine phosphorylation of IGF-IR and growth arrest, and, subsequently, massive cell death was observed (this was also seen in BL-41tsp53-2 cells with mutant conformation of ts p53). Taken together, these results suggest that up-regulation of IGF-IR as a result of expression of aberrant p53 may be important for the growth and survival of malignant cells.

4. **Bartolazzi, A**., Gasbarri, A., Papotti, M., Bussolati, G., Lucante, T., Khan, A., Inohara, H., Marandino, F., Orlandi, F., Nardi, F., Vecchione, A., Larsson, O., and the Thyroid Cancer Study Group. (2001). Application of an immunodiagnostic method for improving the preoperative diagnosis of nodular thyroid lesions. The Lancet 357: 1644-50.
This is the first important International multicentre study, proposed and co-ordinated by the applicant, in which the galectin-3 expression analysis was performed retrospectively on 1006 well-characterized histological thyroid samples. This study was organized and performed by the applicant at Karolinska Hospital, Stockholm, Sweden and involved two Italians Thyroid Centers in Rome and Turin, a Thyroid Institute in Osaka (Japan) and the University of Massachusetts, Boston, USA. The statistical analysis demonstrated that galectin-3 test method had a sensitivity and specificity of 94% and 98% respectively, in detecting thyroid cancer preoperatively, with PPV 98%, NPV 94% and a diagnostic accuracy of 96%. The rationale and the potential application of galectin-3 expression analysis in the preoperative evaluation of thyroid nodules were finally demonstrated.

5. Sjolin H., Tomasello E., Mousavi-Jazi M., **Bartolazzi A**., Vivier E., Karre K., and Cerboni C. (2002): Pivotal role of KARAP/DAP12 adaptor molecule in the natural killer cell-mediated resistance to murine cytomegalovirus infection. J. Exp. Med. 195:825-834.
Natural killer (NK) cells are major contributors to early defense against infections. Their effector functions are controlled by a balance between activating and inhibiting signals. To date, however, the involvement of NK cell activating receptors and signaling pathways in the defense against pathogens has not been extensively investigated. In mice, several NK cell activating receptors are co-expressed and function through the immunoreceptor tyrosine-based activation motif (ITAM)-bearing molecule KARAP/DAP12. Here, we have analyzed the role of KARAP/DAP12 in the early antiviral response to murine cytomegalovirus (MCMV). In KARAP/DAP12 mutant mice bearing a nonfunctional ITAM, we found a considerable increase in viral titers in the spleen (30-40-fold) and in the liver (2-5-fold). These effects were attributed to NK cells. The formation of hepatic inflammatory foci appeared similar in wild type and mutant mice, but the latter more frequently developed severe hepatitis with large areas of focal necrosis. Moreover, the percentage of hepatic NK cells producing interferon gamma was reduced by 56 +/- 22% in the absence of a functional KARAP/DAP12. This is the first study that shows a crucial role for a particular activating signaling pathway, in this case the one induced through KARAP/DAP12, in the NK cell-mediated resistance to an infection. Our results are discussed in relation to recent reports demonstrating that innate resistance to MCMV requires the presence of NK cells expressing the KARAP/DAP12-associated receptor Ly49H.

6. Girnita A, Girnita L, del Prete F, **Bartolazzi A**, Larsson O, Axelson M. (2004). Cyclolignans as inhibitors of the insulin-like growth factor-1 receptor and malignant cell growth. Cancer Res. 64:236-42.
The insulin-like growth factor-1 receptor (IGF-1R) plays a pivotal role in transformation, growth, and survival of malignant cells, and has emerged as a general and promising target for cancer treatment. However, no fully selective IGF-1R inhibitors have thus far been found. This is explained by the fact that IGF-1R is highly homologous to the insulin receptor, co-inhibition of which may cause diabetic response. The receptors are both tyrosine kinases, and their ATP binding sites are identical, implying that ATP inhibitors cannot discriminate between them. Therefore, the

current strategy has been to identify compounds interfering with receptor autophosphorylation at the substrate level. In this study we investigated the effects of cyclolignans and related molecules on IGF-1R activity. We report that certain cyclolignans are potent and selective inhibitors of tyrosine phosphorylation of the IGF-1R. Of particular interest was picropodophyllin (PPP), which is almost nontoxic (LD (50) >500 mg/kg in rodents). PPP efficiently blocked IGF-1R activity, reduced pAkt and phosphorylated extracellular signal regulated kinase 1 and 2 (pErk1/2), induced apoptosis in cultured IGF-1R-positive tumor cells, and caused complete tumor regression in xenografted and allografted mice. PPP did not affect the insulin receptor or compete with ATP in an in vitro kinase assay, suggesting that it may inhibit IGF-1R autophosphorylation at the substrate level. This is also in agreement with our molecular model of how the cyclolignans may act on the IGF-1R kinase. These results open the possibility to use PPP or related compounds with inhibitory effects on IGF-1R as lead compounds in development of anticancer agents.

7. Papotti M, Rodriguez J, Pompa RD, **Bartolazzi A**, Rosai J. (2005). Galectin-3 and HBME-1 expression in well-differentiated thyroid tumors with follicular architecture of uncertain malignant potential. Mod Pathol. 18:541-6.
Well-differentiated encapsulated tumors of the thyroid gland with a follicular architecture may cause diagnostic difficulties. Questionable vascular or capsular penetration may raise the possibility of a follicular carcinoma, while focal nuclear clearing and grooves may suggest a diagnosis of papillary carcinoma. A proposal was made to designate cases showing suggestive but not conclusive morphological evidence of malignancy along these lines as well-differentiated or follicular tumors of uncertain malignant potential. The aim of the present study was to investigate the expression and diagnostic role in well-differentiated or follicular tumors of uncertain malignant potential of Galectin-3 and HBME-1, two malignancy-related markers. A total of 21 tumors fulfilling the criteria of well-differentiated or follicular tumors of uncertain malignant potential were collected from two institutions, including eight cases with questionable vascular and/or capsular invasion and 13 cases with some degree of nuclear changes in the form of clearing, grooves, and/or pseudo inclusions. Tumors in the first group expressed HBME-1 and Galectin-3 focally (less than 25% of tumor cells) in 5/8 and 3/8 cases, respectively, with 62.5% of cases reacting for at least one marker. Cases in the second category expressed HBME-1 and Galectin-3 in 9/13 and 10/13 cases, respectively, with 92.3% of cases having at least one marker expressed. These findings indicate that HBME-1 and Galectin-3 are heterogeneously distributed in these borderline tumors, but that a strong and diffuse expression of HBME-1 and to a lower extent of Galectin-3 was preferentially observed in the group characterized by nuclear changes which were similar but less developed than those of conventional papillary carcinoma. The relationship found between the markers investigated and these nuclear changes suggest that the tumors containing them are pathogenetically linked to papillary carcinomas.

8. B. Cecchinelli, L. Lavra, C. Rinaldo, S. Iacovelli, A. Gurtner, A. Gasbarri, A. Ulivieri, F. del Prete, M. Trovato, G Piaggio, **A. Bartolazzi,*** S. Soddu, & S. Sciacchitano. (2006). Repression of the antiapoptotic molecule Galectin-3 by homeodomain-interactin protein kinase 2-activated p53 is required for p53-induced apoptosis. Mol Cell Biol 26:4746-57. *(* Corresponding author*).
Here we show that p53-induced apoptosis is associated with transcriptional repression of Gal-3.

Previously, it has been reported that phosphorylation of p53 at Ser46 is important for transcription of proapoptotic genes and induction of apoptosis and that homeodomain-interacting protein kinase 2 (HIPK2) is specifically involved in these functions. We show that HIPK2 cooperates with p53 in Gal-3 repression and that this cooperation requires HIPK2 kinase activity. Gene-specific RNA interference demonstrates that HIPK2 is essential for repression of Gal-3 upon induction of p53-dependent apoptosis. Furthermore, expression of a nonrepressible Gal-3 prevents HIPK2- and p53-induced apoptosis. These results reveal a new apoptotic pathway induced by HIPK2-activated p53 and requiring repression of the antiapoptotic factor Gal-3.

9. **Bartolazzi A**, Orlandi F, Saggiorato E, Volante M, Arecco F, Rossetto R, Palestini N, Ghigo E, Papotti M, Bussolati G, Martegani MP, Pantellini F, Carpi A, Giovagnoli MR, Monti S, Toscano V, Sciacchitano S, Pennelli GM, Mian C, Pelizzo MR, Rugge M, Troncone G, Palombini L, Chiappetta G, Botti G, Vecchione A, Bellocco R; Italian Thyroid Cancer Study Group (ITCSG). (2008). Galectin-3-expression analysis in the surgical selection of follicular thyroid nodules with indeterminate fine-needle aspiration cytology: a prospective multicentre study. The Lancet Oncol. 9(6): 543-9. Epub 2008 May 19.
This is the prospective multicentre study, in which galectin-3 test method was finally validated for the clinical use. This study, proposed and co-ordinated by the applicant was carried out at National level and involved 11 Italian Thyroid Institution and 465 patients bearing thyroid proliferations classified as Thy3 at conventional cytology (according to the British Thyroid Association) and than referred to surgery. The galectin-3 test-method was applied to all the lesions on FNA-derived cellblocks, before surgery. Histological diagnosis was considered as the gold standard. A central blind review of histological diagnosis was performed by two independent pathologists (J. Rosai and V. LiVolsi). The statistical analysis demonstrated a sensitivity and specificity of 78% and 93% respectively, PPV 82%, NPV 91% and a diagnostic accuracty of 88%. A diagnostic kit for galectin-3 test method becomes commercially available.

10. **Bartolazzi A**, D'Alessandria C, Parisella MG, Signore A, Del Prete F, Lavra L, Braesch-Andersen S, Massari R, Trotta C, Soluri A, Sciacchitano S, Scopinaro F. (2008). Thyroid cancer imaging in vivo by targeting the anti-apoptotic molecule galectin-3. PLoS ONE. 3(11): e3768. Epub 2008 Nov20.
In this paper, the applicant proposed a new idea for thyroid cancer imaging in vivo, by using a galectin-3 based radio-immunoscintigraphy. Conventional thyroid scintigraphy with iodine, does not provide biological information on thyroid nodules but only functional information related to the iodide uptake (cold or hot nodules). By using galectin-3 positive thyroid cancer xenografts in nude mice, we demonstrated that a ^{99}-Tc radio labeled mAb to galectin-3 provides in vivo imaging of thyroid cancer when injected intravenously in xenografted mice. The galectin-3 based radio-immunoscintigraphy provides biological information about thyroid nodules and represents a useful guide to correctly identify those thyroid proliferations that should be cytologically evaluated and/or promptly excised. The possibility to apply this method for imaging and treatment of other galectin-3 expressing tumors seems also realistic. If the proposed diagnostic approach will prove successful a targeted radio-ablation of galectin-3 expressing tumors might also be explored by using galectin-3 specific mAbs conjugated to different radio compounds (i.e. ^{186}Re, ^{177}Lu or ^{90}Y, ^{64}Cu, ^{67}Cu). (Patented).

Very recently an immunoPET strategy for thyroid cancer imaging in vivo has been developed by our group see: D'Alessandria C, Braesch-Andersen S, Bejo K, Reder S, Blechert B, Schwaiger M, **Bartolazzi A.** Noninvasive In Vivo Imaging and Biologic Characterization of Thyroid Tumors by ImmunoPET Targeting of Galectin-3. Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. ; J Nucl Med. 2019 Jun;60(6):770-776. *;* Thyroid. 2020 Apr 30. doi: 10.1089/thy.2019.0670.

Very recently by using a modified humanized gal3 probe created for immunoPET it has been possible to imaging vulnerable atherosclerotic lesions *in vivo*, in real time.
Theranostic, *(*Jan 1;11(4):1864-1876. doi: 10.7150/thno.50247. eCollection 2021.PMID: 33408786.
Project in collaboration *with the* Department of Nuclear Medicine, Klinikum rechts der Isar der TUM, Munich, Germany. (*AB corresponding author)*

OTHER SCIENTIFIC MERITS
- November, 1998: Winner of "Piero Trivella Award" from Associazione Oncologica Pisana for Research Activity.

- U.I.C.C. (International Union Against Cancer), Yamagiwa-Yoshida Award. 1999

- Since 2001 Life Member of UICC "International Union against Cancer"

International Congress Organizer: Highlights of Thyroid Cancer Pathology and Molecular Biology (Invited speakers and Moderators: Bussolati G., Papotti M., LiVolsi V., Rosai J., Sobrinho Simoes M., Volante M, Bartolazzi A., Sciacchitano S., Nikiforov Y., Tallini G., Fusco A., Santoro M.) Sala della Protomoteca in Campidoglio, February 13th 2009, Rome, Italy.

- President of the 68th session of the WHO regional Committee for Europe Rome, Italy 17-20 September 2018- Copenhagen Denmark, 22 Sept. 2019

- ***Credits from the Italian Minister of Public Health, Work and Social Politics*** for the Clinical and Scientific activities on Thyroid Cancer Rome, February 13th, 2009

- Since year 2000: Member of the Commission of experts for evaluation of EU grants applications (Ref: EE1998 1B02438) (on call).

From February 2015 listed on TIS –Top Italian Scientists - Via-Academy

http://www.via-academy.org

- **PATENT**

Anticorpi monoclonali anti-galectina-3 radio marcati per visualizzazione e radio ablazione in vivo di tumori galectina-3 positivi

Inventor: Armando Bartolazzi

Co-inventors: Francesco Scopinaro

Alberto Signore

Rome February 2nd 2008, Patent. N. RM2008A000097

List of awards

- November, 1998: Winner of "Piero Trivella Award" from Associazione Oncologica Pisana for Research Activity.

-Jan 1999- U.I.C.C. (International Union Against Cancer), Yamagiwa-Yoshida Award.

- Thyroid Cancer Expert nomination: World Health Organization (Lyon cedex DB, France). WHO expert for thyroid Cancer , June 30, 2015

- From February 2015 listed on TIS –Top Italian Scientists - Via-Academy ; http://www.via-academy.org

SCIENTIFIC COLLABORATION AND EXTERNAL RESEARCH GRANTS

External grants for Research

Present Research Group:
Armando Bartolazzi, MD, (P.I.)
Salvatore Sciacchitano MD,
Luca Lavra MD,
Alessandra Ulivieri
Fabio Socciarelli MD, Pathologist (Karolinska Institute)
Calogero D'Alessandria PhD, (Techniska University, Munchen, Germany)
Niccolò Noccioli MD
Giorgia Scafetta PhD

Grants and awards:
i) Recipient of grants from the National Research Council (CNR):

1995 (L. 29 millions.....about 16.000 EURO)
1996 (L. 35 millions.....about 19.000 EURO)

ii) Recipient of grants from Italian Association for Cancer Research (AIRC) with International peer-review:

1995 (L. 40 millions..... about 22.000 EURO)
1996 (L. 45 millions.....about 25.000 EURO)
1997 (L. 45 millions.....about 25.000 EURO)
1998 (L.160 millions.....about 85.000 EURO)
1999 (L.140 millions.....about 72.000 EURO)
2000 (L.120 millions.....about 62.000 EURO)
2003 …… 45.000 EURO)
2005…… 40.000 EURO)
2006…… 40.000 EURO)
2007……120.000 Euro)
2008 …… 40.000 euro

iii) Recipient of grants from the Italian NIH (National Institute of Health:
1999, (about 16.000 EURO total).

iv) U.I.C.C. (International Union Against Cancer), Yamagiwa-Yoshida Award.
1999 (about 10.000 EURO).

v) Recipient of a grant from Swedish Cancer Fonden, for Guest Researcher, 2000-2001. (About 30.000 EURO /total)

vi) KIs Medicinska fakulteter finantial support for research, year 2000-2001, (Sweden) (about 8000 EURO total).

vii) Ragnhild och Einar Lundstroms Minne: Application March, 2000 (Sweden) (10.000 EURO).

viii) Compagnia di San Paolo 207.000 EURO (Italy), 2003-2006.

ix) Italian Ministry of Public Health 11.000 EURO 2004

x) Research Grant from the German Cancer Society (Galectin/3 project) in collaboration with Techniska University Munchen, Germany about 400.000 euro (2015-2018)

xi) Italian League Against Cancer: Galectins as target and predictive biomarkers in lmmune checkpoint inhibitors therapy: a multicentric study 45.000 starting January 2021. (Collaboration with C. Capalbo, Co-PI , St. Andrea University Hospital, Rome)

xii) Italian League Against Cancer: Identification of novel therapeutic opportunities for metastatic colorectal cancer patients. 45.000 starting January 2021. (Collaboration with G.Bossi, Co-investigator; NCI Regina Elena, Rome)

xiii) Italian League Against Cancer: : HIPK2 as a prognostic biomarker for liver fibrosis: evidence and underlying mechanisms. 70.000 euro; starting January 2021. (Collaboration with S. Soddu , Co-investigator NCI Regina Elena, Rome).

xiv) Italian League Against Cancer: Study of AMBRA1 in spitzoid tumors: identification of a biomarker panel for improved diagnosis. 60.000 euro; starting January 2021. (Collaboration with F. Cecconi, C.Cianfanelli, Tor Vergata University, Rome, Ora Università Cattolica del Sacro Cuore).

xv) Ministero Salute (G.Bossi P.I.) Ricerca Finalizzata RF-2021-12372851 ENDORSEMENT OF MKK3 AS NOVEL PROGNOSTIC BIOMARKER AND THERAPEUTIC TARGET IN ADVANCED COLORECTAL CANCER" , 2022. 450,000 euro, National Cancer Institute Regina Elena, Rome

xvi) *AIRC 2017-2019 IG (G. Bossi P.I.)* "INVESTIGATING MKK3 AS NOVEL MOLECULAR TARGET FOR THERAPEUTIC STRATEGY IN MICROSATELLITE STABLE COLORECTAL CANCER". Euro 264.000,00; 2017-2019 (co-investigator with independent research group).

xvii) *Ministero Salute (P.I. Razzuoli E)* - Ricerca Corrente 2022 n. IZS PLV10/22RC – Valorizzazione dei Registri tumori canini Nazionali per la pianificazione strategica delle attività cliniche, diagnostiche ed epidemiologiche. 132.800 euro (P.I.collaborator-independent U.O.)

Six National competitions as *project leader* in the past years four of which founded by Italian Cancerfonden (AIRC) (with International peer review) 2005-2008, one from Compagnia di San Paolo (four years grant 2003-2006); one out of five failed (2004).

International competition as *joint applicant* in the past five years:
(xi) joined project with ***Techniska University Munchen, Germany*** for thyroid cancer imaging in vivo via galectin-3 immunotargeting (founded)

One National competition as *joint applicant* founded by the Italian Ministry of Public Health (2004)

National and International collaborative projects:

i) By the applicant an **International Multicentre Study** entitled: ***Galectin-3 and CD44v6 isoforms in the preoperative evaluation of thyroid nodules,*** in which a new immuno-diagnostic method for thyroid nodules has been validated (1999-2001). Participants: (Italy, USA, Japan, Sweden) (The applicant was the proponent and study co-ordinator, see The Lancet 357: 1644-50, 2001).

ii) ***Structural and functional characterization of SYT and SSX proteins, and SYT-SSX fusion protein in synovial sarcoma and other tumor malignancies. (Since 1999)***
Collaboration with Prof. Olle Larsson, Cellular and Molecular Tumor Pathology, Cancer Center Karolinska CCK R8:04, Karolinska Hospital, Stockholm, Sweden 1999-2001 (see Cancer Res. 62:3861-3867; Modern Pathology 15:679-685) .

iii) By the applicant a **National (Italian) Prospective Multicentre Study entitled: From the bench to the bedside: galectin-3 Thyrotest for improving the diagnostic accuracy of conventional thyroid FNA cytology.** Supported from Compagnia di San Paolo (2002-2006).
The aims of this translational study were: validation for the clinical use of a new diagnostic test-method for the preoperative characterization of thyroid nodules and definition of the clinical and therapeutic guidelines for patients bearing thyroid nodules.
15 Italian University Hospitals and more then 60 Medical Doctors, Biologists and Scientists were involved (The applicant played as proponent and study co-ordinator, see The Lancet Oncology 9(6): 543-9. Epub 2008 May 19th).

iv) By the applicant**: Development of radiolabeled galectin-3 mAbs for in vivo imaging of thyroid tumors (since January 2005).** Collaboration with Prof. Francesco Scopinaro Dept. of

Nuclear Medicine University La Sapienza, Rome, and Prof. Alessandro Soluri, Dept of Physic at the National Research Council, Rome. (A. Bartolazzi proponent and study coordinator, see PLoS ONE. 3(11):e3768. Epub 2008 Nov20th.).

v) Evolution of the aforementioned project and development of immunoPET strategy for thyroid cancer imaging in vivo by targeting galectin-3. Joint International project with *Techniska University Munchen, Germany; Mabtech Solna, Sweden (Armando Bartolazzi, Calogero d'Alessandria; Mark Schwaiger, and Stern Braessh-Andersen) Italy-Germany-Sweden* Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. *(*the applicant is the proponent of the study and International active partner*);* Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. ; J Nucl Med. 2019 Jun;60(6):770-776. *;* Thyroid. 2020 Apr 30. doi: 10.1089/thy.2019.0670.

vi) Collaboration with University of Rome Tor Vergata Department of Bio-Engeneering (prof. Arnaldo D'Amico, Prof. Giorgio Pennazza, Prof. Corrado Di Natale) **Application of sensor microarrays in the clinical practice. Lung Carcinoma and Melanoma diagnosis.** (The applicant is responsible of the biological and medical part of this study) Sci Rep. 2015 Aug 25;5:13246. doi: 10.1038/srep13246.

vii) By the applicant: **Galectin-3 mediated molecular interactions in NSCLC (since January 2008).** Collaboration with Prof. Rolf Lewensohn KBC Karolinska Hospital Solna.
The aberrant expression of galectin-3 in tumor cells has been demonstrated to be critical for the resistance to chemotherapy in several tumor models. Experiments of galectin-3 transfection in thyroid and breast carcinoma cell lines demonstrated that cells expressing galectin-3 are less sensitive to specific chemotherapy. Our preliminary results on NSCLCs tissue microarrays, obtained in collaboration with Rolf Lewensohn 's group at KBC, Karolinska Institute, Stockholm, Sweden, demonstrate that about 50% of Lung adenocarcinomas and squamous cell carcinomas express this molecule.
Considering the fact that no efficient chemotherapy treatment for NSCLCs is currently available, we think that this tumor model represents a good target for studying the biological effects mediated by galectin-3. In this project that will be articulated in different tasks we want to investigate the biological significance of galectin-3 expression in these lesions by using *in vivo* and *in vitro* experimental models with the aim to demonstrate the potential prognostic and predictive value of this marker and eventually a biological rationale for a molecular targeted therapy. (The applicant is the proponent and responsible of this specific study) January 2008- running project).
The role of Galectin-3 as predictive biomarker of tumor responsiveness to checkpoint inhibitors has been recently discovered by our group (Capalbo C, Scafetta G, Filetti M, Marchetti P, **Bartolazzi A**. Predictive Biomarkers for Checkpoint Inhibitor-Based Immunotherapy: The Galectin-3 Signature in NSCLCs. Int J Mol Sci. 2019 Mar 31;20(7). pii: E1607. doi: 10.3390/ijms20071607). *A national multicenter study for validation and clinical translation is running (2020).*

viii) **St. Andrea Melanoma Working Group (SAMWG).** Since January 2008 the applicant created a multidisciplinary working group on melanoma at St. Andrea Hospital, in which basic scientists, oncologists, dermatologists and pathologists interact each other.

Lab meetings, seminars and clinical rounds are organized twice for month at the Department of Pathology. Meetings and seminars are open to the Medical students, residential students and Ph.D. students. Potential research projects, thesis and Ph.D programs are considered, discussed and assigned after a multidisciplinary evaluation).

ix) Ricerca Finalizzata RF-2021-12372851 ENDORSEMENT OF MKK3 AS NOVEL PROGNOSTIC BIOMARKER AND THERAPEUTIC TARGET IN ADVANCED COLORECTAL CANCER" , 2022. National Cancer Institute Regina Elena, Rome, (*G.Bossi principal investigator*)

x) *Italian League Against Cancer: Identification of novel therapeutic opportunities for metastatic colorectal cancer patients.* starting January 2021. (Collaboration with G.Bossi, Co-investigator; NCI Regina Elena, Rome)

xi) *Italian League Against Cancer:* : *HIPK2 as a prognostic biomarker for liver fibrosis: evidence and underlying mechanisms*; starting January 2021. (Collaboration with S. Soddu , Co-investigator NCI Regina Elena, Rome).

xii) *Italian League Against Cancer: Study of AMBRA1 in spitzoid tumors: identification of a biomarker panel for improved diagnosis.* Starting January 2021. (Collaboration with F. Cecconi, C.Cianfanelli, Tor Vergata University, Rome, Ora Università Cattolica del Sacro Cuore).

xiii) *Ministero Salute (P.I. Razzuoli E)* - Ricerca Corrente 2022 n. IZS PLV10/22RC – Valorizzazione dei Registri tumori canini Nazionali per la pianificazione strategica delle attività cliniche, diagnostiche ed epidemiologiche. Collaboration with IZTS-network (P.I.collaborator- independent U.O.)

RUNNING PROJECTS (last five years)

A) By the applicant**: Development of radiolabeled galectin-3 mAbs for in vivo imaging of thyroid tumors (since January 2005).** Collaboration with Prof. Francesco Scopinaro Dept. of Nuclear Medicine University La Sapienza, Rome, and Prof. Alessandro Soluri, Dept of Physic at the National Research Council, Rome. (A. Bartolazzi proponent and study coordinator, see PLoS ONE. 3(11):e3768. Epub 2008 Nov20th.).

Evolution of the aforementioned project and development of immunoPET strategy for thyroid cancer imaging in vivo by targeting galectin-3. Joint International project with

Techniska University Munchen, Germany; Mabtech Solna, Sweden (Armando Bartolazzi, Calogero d'Alessandria; Mark Schwaiger, and Stern Braessh-Andersen) Italy-Germany-Sweden Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. *(*the applicant is the proponent of the study and International active partner*);* Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. ; J Nucl Med. 2019 Jun;60(6):770-776. *;* Thyroid. 2020 Apr 30. doi: 10.1089/thy.2019.0670. *The project is running for translation in the clinical setting.*

B) **By the applicant: Galectin-3 mediated molecular interactions in NSCLC (since January 2016).** The aberrant expression of galectin-3 in tumor cells has been demonstrated to be critical for the resistance to chemotherapy and immunotherapi in several tumor models. Experiments of galectin-3 transfection in thyroid and breast carcinoma cell lines demonstrated that cells expressing galectin-3 are less sensitive to specific therapy. Our preliminary results on NSCLCs tissue microarrays, obtained in collaboration with Rolf Lewensohn 's group at KBC, Karolinska Institute, Stockholm, Sweden, demonstrate that about 50% of Lung adenocarcinomas and squamous cell carcinomas express this molecule. Considering the fact that no efficient treatments for NSCLCs is currently available, we think that this tumor model represents a good target for studying the biological effects mediated by galectin-3. (The applicant is the proponent and responsible of this specific study).

The role of Galectin-3 as predictive biomarker of tumor responsiveness to checkpoint inhibitors has been recently discovered by our group. A small pilot study is already published (Capalbo C, Scafetta G, Filetti M, Marchetti P, **Bartolazzi A**. Predictive Biomarkers for Checkpoint Inhibitor-Based Immunotherapy: The Galectin-3 Signature in NSCLCs. Int J Mol Sci. 2019 Mar 31;20(7). pii: E1607. doi: 10.3390/ijms20071607).
A national multicenter study for validation of gal-3 signature and clinical translation is running (since 2020).

C) Very recently by using a modified humanized gal3-probe created for immunoPET it has been possible to ***imaging vulnerable atherosclerotic lesions in vivo***. Theranostic, *(2021)* Jan 1;11(4):1864-1876. doi: 10.7150/thno.50247. eCollection 2021. Project in collaboration *with the* Department of Nuclear Medicine, Klinikum rechts der Isar der TUM, Munich, Germany, for translation in the clinical setting. (*AB Co-PI)*

D) Galectin-3 seems to play an important role in organ fibrosis. A project entitled "***HIPK2 as a prognostic biomarker for liver fibrosis: evidence and underlying mechanisms.****"* is running in collaboration with Dr. Silvia Soddu and her group at the NCI Regina Elena of Rome *(running project starting January 2021 – Co-investigator)*

E) **St. Andrea Melanoma Working Group (SAMWG).** Since January 2008 the applicant created a multidisciplinary working group on melanoma at St. Andrea Hospital, in which basic scientists, oncologists, dermatologists and pathologists interact each other.
Lab meetings, seminars and clinical rounds are organized twice for month at the Department of Pathology. Meetings and seminars are open to the Medical students, residential students and

Ph.D. students. Potential research projects, thesis and Ph.D programs are considered, discussed and assigned after a multidisciplinary evaluation).
*Running Project: A. Bartolazzi - "**Molecular, phenotypical and morfological analysi of Spitzoid Melanocitic tumors with uncetain malignant potential"** (starting from January 2020) St. Andrea Universiy Hospital (Principal Investigator and coordinator)*

F) ***Identification of novel therapeutic opportunities for metastatic colorectal cancer patients.*** Collaboration with G. Bossi, Center for Experimental Research NCI Regina Elena, Rome starting January 2021. (Co-investigator)

G) ***Study of AMBRA1 in spitzoid tumors: identification of a biomarker panel for improved diagnosis.*** Collaboration with Prof. F. Cecconi, Unit Head Danish Cancer Society Research Center - Copenhagen, Denmark. *Running Project Starting February 2021*. (Co-investigator).

H)- Italian League Against Cancer: **: *HIPK2 as a prognostic biomarker for liver fibrosis: evidence and underlying mechanisms*;** starting January 2021. (Collaboration with S. Soddu , Co-investigator NCI Regina Elena, Rome).

I)-Ministero Salute (G.Bossi P.I.) Ricerca Finalizzata RF-2021-12372851 **ENDORSEMENT OF MKK3 AS NOVEL PROGNOSTIC BIOMARKER AND THERAPEUTIC TARGET IN ADVANCED COLORECTAL CANCER**" , 2022. Collaboration with National Cancer Institute Regina Elena, Rome

L)-Ministero Salute (P.I. Razzuoli E) - Ricerca Corrente 2022 n. IZS PLV10/22RC – **Valorizzazione dei Registri tumori canini Nazionali per la pianificazione strategica delle attività cliniche, diagnostiche ed epidemiologiche.** Collaboration with IZTS-network (P.I.collaborator- independent U.O.)

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The most recent research activity of the applicant is focused on galectins glycobiology.
It is becoming clear that galectins play an important role in all the mechanisms underlying cancer growth and progression (see Girotti M.R, et al "S*weetening the hallmarks of cancer: Galectins as multifunctional mediators of tumor progression"* (J Exp Med 2020) .
The applicant believe that this complex and exciting field of research has the potential to substantially improve knowledge on cancer biology, with the possibility to identifying new diagnostic, prognostic and therapeutic markers for different cancer types.

Hanahan and Weinberg have proposed ten organizing principles that enable growth and metastatic dissemination of cancer cells (*Cell 100:57-70,2000 and Cell 144:646-674,2011*) . These distinctive and complementary capabilities, defined as 'the hallmarks of cancer', include the ability of tumor cells and their microenvironment to sustain proliferative signaling, evade growth

suppressors, resist cell death, promote replicative immortality, induce angiogenesis, support invasion and metastasis, reprogram energy metabolism, induce genomic instability and inflammation and trigger evasion of immune responses. These common features are hierarchically regulated through different mechanisms, including those involving glycosylation-dependent programs that influence the biological and clinical impact of each hallmark.

Galectins, an evolutionarily conserved family of glycan-binding proteins, have broad influence in tumor progression by re-wiring intracellular and extracellular circuits either in cancer or stromal cells, including immune cells, endothelial cells and fibroblasts. It will be very exciting to dissect the role of galectin-glycan recognition systems in shaping cellular circuitries governing each hallmark of tumors.

In the right work environment, in which clinical and basic research skills can easily be integrated, this task has the potential to open novel opportunities for diagnosis, therapy and prognostication of human cancer.

Several research projects have been pursued by the applicant in this field of study, some already completed with published results, others in progress.

-Galectins in tumor diagnosis (J. Clin. Oncol.17, pp. 3494-3502; The Lancet 357: 1644-50, 2001; The Lancet Oncology 9(6): 543-9. Epub 2008 May 19th).

-Galectins in diagnosis of other diseases (Theranostic, *(2021)* Jan 1;11(4):1864-1876. doi: 10.7150/thno.50247.) – Project running for clinical translation

-Galectins and tumor imaging (PLoS ONE. 3(11):e3768. Epub 2008 Nov20th; Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. ; J Nucl Med. 2019 Jun;60(6):770-776. *;* Thyroid. 2020 Apr 30. doi: 10.1089/thy.2019.0670). Project running for clinical translation

-Galectin signature as predictive marker of tumor responsivenes to checkpoint-inhibithors (Int J Mol Sci. 2019 Mar 31;20(7). pii: E1607. doi: 10.3390/ijms20071607). Project running for clinical translation

-Galectins and organ fibrosis (Project running).

Galectins contribute to tumor progression through multiple interconnected pathways. Given their critical roles in different hallmarks of cancer, galectins have emerged as relevant therapeutic targets and reliable biomarkers to delineate patient prognosis and clinical responses.

Participation in international scientific conferences as an invited speaker or moderator in the past 15 years (a selection).

A. Bartolazzi**:** Melanoma: from the basic science to the clinical application. *Residential course of the European School of Oncology and Experimental Medicine. NCI of Milan. Milan, Italy, 14 th December, 1998.*

A. Bartolazzi: First course of Thyroid-FNA and Thyroid-echography.
Residential course of the Italian Society of Endocrinology and Italian Societies of Pathology and Cytology. 6-7 November 2003, Palermo, Italy.

Bartolazzi A. The dark side of Hashimoto thyroiditis: presence of thyroid cancer precursor lesions in a specific subset of chronic autoimmune thyroid conditions. 3rd Congresso Nazionale SIAPEC-IAP, Firenze 26-30 Settembre 2004.

Bartolazzi A: Molecular and functional aspects of Galectin-3 expression in thyroid cancer. Eight International Congress Advances in Management of Malignancies. Pisa October 14-15, 2004 *(Invited speaker and moderator).*

Bartolazzi A: Posttranslational regulation of CD44-mediated functions in cells of melanocytic origin. 6° World Congress on Melanoma. Vancouver, British Columbia, Canada, Sept 6-10, 2005.

Bartolazzi A. Galectin-3 on large needle aspiration biopsy histology of thyroid nodules: retrospective and prospective studies. Advances in Management of Malignancies. Ninth International Congress, Pisa October 12-13, 2006 *(Invited speaker and moderator).*

Bartolazzi A, Sciacchitano S et al. p53 mutations stimulate galectin-3 expression and increase proliferation of anaplastic thyroid carcinoma cell lines. 77th Annual Meeting of the American Thyroid Association (ATA), Phoenix, Arizona USA, 2006.

Bartolazzi A, Sciacchitano S et al. Opposite effect of wt and mutant p53 on galectin-3 gene expression in human thyroid carcinoma cell lines. 31st Annual Meeting of the European Thyroid Association, Naples, Italy 2006, abstract book p8 pag 29.

Bartolazzi A, Sciacchitano S. et al.: p53 mutants stimulate galectin-3 expression and inhibit apoptosis in anaplastic thyroid carcinoma cell lines. 32° Congresso Società Italiana di Endocrinologia (SIE) Journal of Endocrinological Investigation 30 (suppl. to no4) (2007).

Bartolazzi A, Sciacchitano S. et al. Galectin-3 expression modulates chemoresistance of anaplastic thyroid carcinoma cell lines. 78th annual meeting of the American Thyroid Association

(ATA) New York, USA, 2007.

Bartolazzi A. Galectin-3 and thyroid cancer. International Drug Discovery Science and Technology IDDST - 7-13 November, 2007, Xian, China *(Speaker and Moderator).*

Bartolazzi A. Thyroid cancer imaging *in vivo* by targeting the anti apoptotic molecule galectin-3. 13th International Congress of endocrinology ICE 2008, November 8-12, 2008 Rio de Janeiro, Brasil.

Salvatore Sciacchitano & Armando Bartolazzi on behalf of the Italian Thyroid Cancer Study Group (ITCSG): Diagnostic impact of the Galectin-3 test-method in the surgical selection of follicular thyroid nodules with indeterminate FNA-cytology. A prospective multicentre study from the Italian Thyroid Cancer Study Group (ITCSG). 79th annual meeting of the American Thyroid Association (ATA) Chicago, USA, 2008.

A. Bartolazzi :Advances in Management of Malignancies. X International Congress, Pisa October 12-13, 2008 (*Moderator*)

A. Bartolazzi: Dermatopathology Session. Meeting **SIAPEC-IAP** October 27, 2013 - October 30, 2013 Ergife Palace Hotel Via Aurelia, 619, Roma (IT) *(Moderator).*

A. Bartolazzi: Innovazione Tecnologica e Biotecnologie nello Screening del Carcinoma Manmmario. Potenziali e Limiti - Niccolò Cusano University Rome 2015 (Invited Speaker)

A. Bartolazzi : Highlights of Thyroid Cancer Pathology and Molecular Biology. Sala Della Protomoteca in Campidoglio, Rome February 13, 2009 (*International Concress Organizer, Speaker and Moderator)*

A. Bartolazzi: Antiproliferative Effects of 1α-OH-vitD$_3$ in Malignant Melanoma. Potential Therapeutic implications. 6th European post-Chicago Melanoma meeting / Skin Cancer Meeting 2016. Leonardo Royal Hotel, Munich, Germany. June 30-July1st, 2016

A.Bartolazzi: "Galectin-3 in the preoperative diagnosis of thyroid cancer". Dept. of Nuclear Medicine - Teckniska University – Munchen Germany June 10, 2011

A.Bartolazzi: ***Galectin-3 in thyroid cancer: the impact on diagnosic FNA-cytology and thyroid cancer imaging in vivo.*** Lousanne, CHUV, May 4th 2017

A.Bartolazzi: **WHO regional Committee for Europe;** Rome, Italy 17-20 September 2018- (President and moderator).

A. Bartolazzi: ***The National Health System among Innovations and sostenibility***. High School of Economy and Management of NHSs (ALTEMS); Catholic University Sacro Cuore, Rome. November 5th , 2018 , Rome Italy.

A. Bartolazzi: "***Galectin-3: a molecular target for an alphabet of diseases and theranostic approaches".*** ETH-Zurich (SW) , August 29, 2019

A. Bartolazzi: ***From the bench o the bed-side- Galecin-3 in the preoperative diagnosis og thyroid nodules.*** CUEM St. Raffaele Hospital, Milan Italy, July 7th, 2019

A.Bartolazzi: ***When pathologist looks in the sugar box.***
Opening Lecture- VIII^ Meeting Italian Society of Anatomic Pathology and Cytology-International Academy of Pathology - SIAPEC-IAP , Turin Italy; October 16-19, 2019

A. Bartolazzi: ***CAR-T cell factory: Production and quality control. The new challange***
July 20-21, 2021 Meldola (FO) Italy (Moderator).

A. Bartolazzi: The Animal Tumor Registry: Memorandum of Understanding. Italian League against Cancer and Nationl Federation of veterinary FNOVI – Naples, Italy, December 10-12, 2021 (speaker and Moderator).

A. Bartolazzi: Strategies for improving tumor prevention and early diagnois at National Level. The LILT National Assembly, Rome, Italy, Sept. 24-25, 2021.

The applicant has been invited to play as speaker, moderator, lecturer in international scientific conferences many times. **In 2018-2019 he has given several talks in different scientific contexts. Of relevance he was speaker in the plenary session at WHO Assembly in Joanesburg and WHA in Geneve presenting the Italian Resolution for calm down the price of cancer drugs; as request by the Italian Government.**

Da Aggiornare…. 2009-2016 (numerosi inviti come relatore e/o chairman per seminari, lezioni, convegni in Istituzioni Nazionali ed Internazionali ….. (dati non aggiornati ma reperibilii se necessario)

EVALUATION OF OTHERS' WORK

- **Appointments as an expert for the judgement of applications for academic positions** (one time for Karolinska Institute) year 2002

- **Boards of International scientific evaluation committees** (European Commission since year 2000)

- **Referee duties for research applications at an international level**

Since year 2000: Member of the Commission of experts for evaluation of EU grants applications (Ref: EE1998 1B02438) (on call)

- **Referee duties for research applications at a national level.**

Occasional role as referee for the Italian Association for Cancer Research fellowships

- **Work as an external opponent for PhD thesis (International Institutions) :**

Karolinska Institute, Stockholm, Sweden, and Gronigen University, Netherland

-Since Nov 2019: As President of the National Scientific Committee of LILT (Lega Italiana per la Lotta ai Tumori) - Full responsibility for the international review process of scientific projects in the oncological field worthy of funding. Allocated Funds about 1,700,000 euro/year from the Ministry of Health of the Italian Government

- EDITOR / REFEREE FOR SCIENTIFIC JOURNALS.

Referee activity
The Lancet, Journal of Experimental Medicine, Cancer Research; Journal of Clinical Oncology; International Journal of Cancer; American Journal of Pathology; European Journal of Cancer; British Journal of Cancer; British Journal of Dermatology; PLoS One; Thyroid; Journal of Endocrinology Investigation; Molecular Endocrinology; Histopathology; Journal Biological Chemistry; Journal of the American Academy of Dermathologists (JAAD); Others…..

Member of Journals' Editorial Board

Rare Tumors

Internationa Journal of Molecular Science

Guest Editor: **International Journal of Molecular Sciences** : special issue.

COLLABORATION WITH THE COMMUNITY

Participation in pharmaceutical evaluation / recommendations, pharmaceutical committee work. 1988: Participation in several commissioned studies for characterization of mAbs to be used in clinical practice (i.e. immunohistochemistry, immunoscintigraphy etc...). (Contracts Legge 46, NIH-Industry, Sorin Biomedica).

Field visits and information to non-professionals

November, 8th 1998: National day Against Cancer (organized by the Italian Association for Cancer Research). All the Italian Institutions for Cancer Research were opened to the public. The applicant was selected as Italian researcher to present his research program in a half day meeting.

MASS-MEDIA CITATIONS, ARTICLES IN NATIONAL, INTERNATIONAL NEWSPAPERS AND ON-LINE, IN WHICH THE APPLICANT'S RESEARCH ACHIEVEMENTS ARE MENTIONED.

1. Strategia in quattro fasi per battere il cancro. Tiroide.
Corriere della Sera (Italian newspaper) May 31th, 2001

2. Tiroide: E' Italiana una nuova tecnica di diagnosi. Noduli svelati. ***Corriere Salute*** (*Suppl. Corriere della Sera),* October 21 st 2001.

3. Nytt test hittar sköldkörtelcancer.
Dagens Medicine., Tisdag 12 Juni 2001, (Sweden)

4. New test may reduce Unnecessary surgeries on noncancerous thyroid tissues. Top stories of July , July 23th , 2001. ***American Cancer Society web-site.***

5.Tiroide: La verita' sul nodulo. (Info/salute 2) ***Io Donna*** (*Suppl. Corriere della Sera*) December 1st, 2001.

6. Cancro alla tiroide, basta un test. **Il Tempo** (Italian newspaper) February, 12th,2002.

7. Tumori alla Tiroide, un marker li "vede" prima. **Repubblica (inserto salute)** (Italian newspaper) March 7th,, 2002

8. Innovativa diagnosi per le lesioni follicolari. Due Guardie per la Tiroide. **TEMPO MEDICO** n.713, 27 Settembre, 2001

9. **TG3-RAI, Italian Television, Interview, February 2002.**

Galectin-3 thyrotest for the preoperative diagnosis of thyroid cancer

10. Un test per scoprire il tumore alla tiroide. **Il Giornale di Napoli** (Italian newspaper) December 11th, 2002

11. Noduli alla tiroide: sempre piu' concreta la possibilita' di una diagnosi precoce non invasiva. **Salute Europa. News,** 19-11-2004

12. **RAI-1, UnoMattina. Italian Television, Interview,** The electronic nose in oncology. 18 September, 2007.

13. Scoperta Italiana per la diagnosi del tumore alla tiroide

Salute Europa News 11/9/2008.

14. Scoperta Italiana per la diagnosi del tumore alla tiroide

Italia Salute.it 18/10/2008.

15. Tiroide, un test per evitare interventi superflui.

Corriere della Sera – Sportello Cancro 19 May, 2008.

16. No more unnecessary surgery for thyroid nodules

AllinfoDir Health Articles and News May 19th, 2008.

17. Gene test may improve thyroid cancer diagnosis.

Medical News May 19th, 2008.

18. Test could improve diagnosis of thyroid nodules.

Modern Medicine May 20th , 2008.

19. New thyroid nodule test could significantly reduce unnecessary surgeries. **eCancer.tv** May 18th, 2008.

20. Analisis de presencia de galectina-3 puede eliminar ciertas intervenciones. **Yahoo Mexico Noticias.** Mayo 18th, 2008.

21. Galectin-3 test could decrease the number of unnecessary surgical procedures. **EUREKALERT** May 18th, 2008.

22. Many other National and International mass-media comunications in the recent year and during the political activity as Undersecretary of State for the Ministry of Health and President of WHO for European Region 68th Committee Sep. 2018- Sept.2019

PEDAGOGICAL PORTFOLIO

Approved by the Board of Research, January 1st 2008
Karolinska Institute

ARMANDO BARTOLAZZI M.D., Ph.D.

2022

TEACHING EXPERIENCE

The following section documents teaching experience within:

(1) Undergraduate studies

1997-99: - Professor of Histology and Anatomy, School for Registered nurses, at the NCI Regina Elena of Rome and University "La Sapienza" of Rome, Italy (30 students /year, 20% time work, full responsibility of the course, fully independent).

2001-2006: Adjunct Professor of Histopathology, University School for Technicians of Biomedical Laboratory, University La Sapienza, Sant'Andrea Hospital, Rome, Italy (15-18 students/year) (30% time work, full responsibility of the course, fully independent).
Type of activities: lectures, postgraduate courses, seminars, demonstrations, laboratory supervision.

The applicant was also component of the examination committee at the end of each Academic Year. (Oral and written examination).

(2-3) Postgraduate studies

Postgraduate teaching and Specialist training

2002-present: ***-Adjunct Professor of Surgical Pathology for the Residential Course in Surgical and Anatomic Pathology,*** St. Andrea University Hospital, University La Sapienza, Rome, Italy (30% time work. full year, co-responsibilty).

2002-2010: ***-Adjunct Professor of Surgical Pathology for the Residential Course*** **in Dermatopathology**, St.Andrea University Hospital, University La Sapienza, Rome Italy (30% time work, Full year, full-responsibilty).

2002-2006: - ***Adjunct Professor of Surgical Pathology for Medical Students*** (Pathology of the Endocrine diseases). St. Andrea University Hospital, University La Sapienza, Rome, Italy (more then 80-100 students/year). (10% time work, Full year, full-responsibility).

2002-2006: - ***Adjunct Professor of Surgical Pathology for Medical Students*** (Pathology of the Skin and Plastic Surgery). St. Andre University Hospital, University La Sapienza, Rome Italy (more then 80-100 students/year). (10% time work, Full year, full-responsibility).

Type of activities: lectures, graduate courses, seminars.

The applicant has been also component of the examination committee at the end of each Academic Year (oral and practical examination)

Supervision of doctoral candidates/postgraduate education

Chief Supervisor for Ph.D. and M.D. graduated at National and International levels

Since 2002 **Co- Supervisor of PhD students and post-graduated students at national and international level**

Supervision of doctoral candidates/postgraduate education

Chief Supervisor

1991-92: - **Cristina Cerboni, *PhD dissertation*** (Summa cum laude)
National Cancer Institute Regina Elena of Rome.
Past position: Researcher (Docent) Dept. of Experimental Medicine, Immunology Lab. University La Sapienza – Rome
Present Position: Associate Professor of Biology and General Pathology, Sapienza University, Rome, Italy

1994-99: - **Alessandra Gasbarri, *PhD dissertation*** (Summa cum laude)
National Cancer Institute Regina Elena of Rome.
Present Position: Product Manager Rottafarm (Farmaceutical Company)

1994-2006: ***Marco Paolo Martegani PhD, Post-Doc.***
National Cancer Institute Regina Elena of Rome.
Present Position: CEO- Bioinformatic Company

1999- 2005, **Paola Begini *MD Degree*** (Summa cum laude)
University La Sapienza of Rome. St. Andrea Hospital.
Present position: Specialist in Gastroenterology

2004- 2008, **Flavia Melotti MD**, ***Specialist Degree in Pathology***, (Summa cum Laude)
St. Andrea Hospital, University La Sapienza of Rome.
Past positions: Pathologist in Uganda (Patologist Senza Frontiere onlus); Post dotoral fellow Karolinska Hospital, Stockholm , Sweden.
Present Position: Specialist in surgical pathology

2006-2008 **Barbara Cecchinelli PhD**, ***Specialist Degree in Laboratory Medicine***
(Summa cum Laude). St. Andrea Hospital, University La Sapienza of Rome.
Past Position: Research fellow of the Italian Association for Cancer Research
Present Position: Nutritionist

2006-2008 **Lucia Spath PhD (***summa cum laude)*
Post-Doc Pathology Post doctoral fellow Research Lab., St. Andrea University Hospital.
Past Position: Research fellow of the Italian Association for Cancer Research
Present Position: Biologist at Marina Militare, Italy

2005-2009 **Maria Giubetini MD,** Specialist Degree in Histology and Antomic Pathology, University Sapienza, Rome, Italy (*Summa cum* laude).
.
2009-2015 **Diletta Marini MD.,** Medical Degree, University Sapienza, Rome, Italy *(Summa cum Laude)*

2011-2016 **Fabio Socciarelli MD,** Specialist Degree in Histology and Antomic Pathology, University Sapienza, Rome, Italy *(Summa cum Laude)*
Present Position: Research Fellow at Karolinska Institute, Stockholm, Sweden

Co- Supervisor of PhD students and graduated students

2/2000-5/2000: - ***Helen Conlon***, Diploma in Biomedical Sciences and degree in Applied Sciences (first class student). Dublin Institute of Technology, Kevin St. Dublin 8, Ireland. Cellular and Molecular Tumor Pathology Lab. Cancer Centre Karolinska, Karolinska Hospital, Stockholm, Sweden.

2000-2004: **Maria Tornqvist, PhD student**.
Cellular and Molecular Tumor Pathology Lab. Cancer Centre Karolinska, Karolinska Hospital, Stockholm, Sweden.

Co-Supervisor of M.D. (Residents in surgical pathology) and Post-Doc

2001-2005: **Tiziana Andreani MD**, Specialist Degree in pathology (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2001-2005: **Cristina Giustiniani MD,** Specialist Degree in pathology (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2002 – 2006: **Jose Nunari MD,** Specialist Degree in pathology (Summa cum Laude), University La Sapienza of Rome, (co-supervisor).

2002-2006: **Valentina D' Alessandro MD,** Specialist Degree in pathology (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2002-2006: **Manila Antonelli MD,** Specialist Degree in pathology (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2003- 2007: **Arianna Di Napoli MD,** Specialist Degree in pathology, (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2004- 2008: **Giuseppe Montrone MD,** Specialist Degree in pathology, (Summa cum Laude), University La Sapienza of Rome (co-supervisor).

2005- today: **Samantha Noto MD**, residents in pathology, University La Sapienza of Rome (co-supervisor).

2005- today: **Alessandra Cambone MD, PhD,** residents in pathology, University La Sapienza of Rome (co-supervisor).

2005- 2009: **Claudio Cacchi MD**, residents in pathology, University La Sapienza of Rome (co-supervisor).

2005- 2009: **Maria Giubettini MD**, residents in pathology, University La Sapienza of Rome (co-supervisor).

2005- 2009: **Annuka Pasanen MD**, residents in pathology, University La Sapienza of Rome (co-supervisor).

2005-2009: **Laura Fidanza MD**, residents in Dermatology, University La Sapienza of Rome (supervisor).

2010- 2014: **Eugenio Pucci MD:** residents in pathology, University La Sapienza of Rome (co-supervisor)

2010-2014: **Federica Pulcini MD,** : residents in pathology, University La Sapienza of Rome (co-supervisor)

2010-2015: **Mariangela Lombardi MD,** : residents in pathology, University La Sapienza of Rome (co-supervisor)

2011-2015: **Fabio Socciarelli MD,** : residents in pathology, University La Sapienza of Rome (co-supervisor)

2013- today **Gianluca Rampioni MD,** , residents in pathology, University La Sapienza of Rome (co-supervisor)

2013-today **Giuseppe Mallel MD,,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2015-today **Antonio Palumbo MD**, , residents in pathology, University La Sapienza of Rome (co-supervisor)

2015-today **Silvio Maddalena MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2016- today **Arcangelo Di CerboMD**, residents in pathology, University La Sapienza of Rome (co-supervisor)

2016- today, **Diletta Marini MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2016-today **Giorgia Scafetta PhD** , PhD program University Tor Vergata, Roma (supervisor)

2020-today: **Antonello Cardone MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2016- 2020, **Francesco Gambaro MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2018-today: **Niccolò Noccioli MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Pia Odengaard MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Silvia Suderi MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Evelina Rogges MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Tiberio Corati MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Maria Vittoria Vescovo MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Lavinia Bargiacchi MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

2020-today: **Federico Mainardi MD,** residents in pathology, University La Sapienza of Rome (co-supervisor)

Invited Faculty Opponent for PhD Dissertation

Daria Cosaceanu: The use of IGF-1R Inhibitors in cancer therapy- A potential approach for sensitizing tumor cells to ionizing radiation. Friday October 6th 2006 Karolinska Institute, Stockholm, Sweden.

Onofrio Catalano: PET/MR imaging of neoplastic and inflammatory lesions. May, 30th 2018, University of Groningen, Netherland.

Postgraduate teaching and Specialist training

2001-present: ***-Adjunct Professor of Surgical Pathology for the Residential Course*** **in Surgical and Anatomic Pathology,** St. Andrea University Hospital, University La Sapienza, Rome, Italy (full year).

2001-2009: ***-Adjunct Professor of Surgical Pathology for the Residential Course*** **in Dermatopathology,** St.Andrea University Hospital, University La Sapienza, Rome Italy (full year).

2002-2006: - ***Adjunct Professor of Surgical Pathology for Medical Students*** (Pathology of the Endocrine diseases). St. Andrea University Hospital, University La Sapienza, Rome, Italy (more then 80 students/year).

2002-2006: - ***Adjunct Professor of Surgical Pathology for Medical Students*** (Pathology of the Skin and Plastic Surgery). St. Andrea University Hospital, University La Sapienza, Rome Italy (more then 80 students/year).

The applicant was also component of the examination committee at the end of each Academic Year.

Trainer Activity and supervision for undergraduate students and technicians

1993-94: ***Aaron Nocks****, Lab technician,* Pathology Research. Lab. Harvard Medical School Mass. General Hospital, Boston MA, USA. (Co-supervisor)

1994-2001: ***Fabrizio Del Prete****, Lab technician,* Immunology Lab., National Cancer Institute Regina Elena of Rome. University School for Biomedical Laboratory Technicians. (Chief supervisor). *(Diploma summa cum laude).*

January 2004- December 2006: ***Luciani Emidio*** *Lab technician*. University School for Biomedical Laboratory Technicians. University La Sapienza, Rome. (Chief supervisor). *(Diploma summa cum laude).*

January 2004- 2006: ***Clorinda Marchetti,*** *Lab technician,* University School for of biomedical laboratory technicians. University La Sapienza, Rome. (Chief supervisor). *(Diploma summa cum laude).*

January 2006-2007: ***Marianna Coccetti****, Lab technician* University School for of biomedical laboratory technicians. University La Sapienza, Rome. (Chief supervisor). *(Diploma summa cum laude).*

January 2004- December 2006: ***Domenico Laino,*** *Lab technician*. University School for Biomedical Laboratory Technicians. University La Sapienza, Rome. (Chief supervisor). *(Diploma summa cum laude).*

January 2004- December 2006: ***Vincenzo Morrone*** *Lab technician*. University School for Biomedical Laboratory Technicians. University La Sapienza, Rome. (Chief supervisor). *(Diploma summa cum laude).*

Text books (book's chapters for Medical doctors, and Specialists in Oncology and Surgical Pathology)

1. Conti, EMS., Bartolazzi**, A**., Diotallevi, F., Crespi, M. (1987). Lineamenti di epidemiologia del carcinoma dell'endometrio. XIII Congresso Nazionale di Oncologia (S.I.P.D.T.) - I tumori dell'utero, dell'ovaio e della vulva- Monduzzi Edit. Vol. 1: pp. 461-473

2. **Bartolazzi, A**., Mottolese, M., Prat, M., Vocaturo, A., Vocaturo, G., Atlante, G., Natali, PG. (1990). Potenziale immunodiagnostico degli AcMo AR-3 e B72.3 nel carcinoma dell'endometrio. - Atti della societa' Italiana di Ginecologia ed Ostetricia. - Class International Edition. Brescia

3. Natali, PG., Mottolese, M., Venturo, I., Salzano, M., Bartolazzi**, A**., **Perrone** Donnorso, R., Bigotti, A. (1990). Improvement of cytodiagnosis of solid tumors using a panel of monoclonal antibodies. In: Biological response modifiers. Application in clinical medicine. Indivieri, F., Puppo, F., Sudelletti, M.: Editors, pp. 314-323. Esculapio Bologna

4. Parisi, A., Bartolazzi**, A**., Bonino, C., Camagna, M., De Monte, LB., Lombardi, A., Natali, PG., Paganelli, G., Tarditi, L., Vassarotto, C., Malavasi, F. and Mariani, M. (1992). BIS-1: a novel bispecific monoclonal antibody for CEA-expressing carcinoma radioimmunoscintigraphy and radioimmunotherapy. - In: New generation of monoclonal antibodies in diagnosis and therapy. Biotech RIA (Karger ed.)

* 5. **Bartolazzi, A**. (1999): CD44 ed acido ialuronico nella crescita e progressione neoplastica. *In*: Giavazzi, R., Lollini, PL., Bevilacqua, G. Invasione e metastasi Ed. da Pacini Editore; pp. 57-75.

* 6. Natali, PG, **Bartolazzi, A**. (1999). : Le molecole di adesione nella fisiopatologia della crescita e della progressione del melanoma cutaneo.. *In*: Giavazzi, R., Lollini, PL., Bevilacqua, G. Invasione e metastasi Ed. da Pacini Editore; pp. 207-222.

7. **Bartolazzi, A** (2004): Thyroid Fine Needle Aspiration Cytology. In Encyclopedia of Endocrinology and Endocrine Diseases. L. Martini Editor, Academic Press San Diego, CA, USA.

8. **Bartolazzi, A** (2009):. Non-small cell lung carcinoma: EGFR gene mutations and response to gefitinib. In Methods of Cancer Diagnosis, Therapy and Prognosis. M.A. Hayat Editor, Springer 1020 pgg.

9. **A. Bartolazzi**, Thyroid Fine Needle Aspiration Cytology. update to **B0-12-475570-4.01286-5**
ELSEVIER INC, 225 Wyman Street, Waltham, MA 02451, United States.
Online Reference Database in **Biomedical Sciences** (2015 in press).

10) A. Bartolazzi and co-authors : Follicolar thyroid Cancer. In WHO Blue Books 4th Edition WHO Classification of Tumors of Endocrine Organs. World Health Organization (Lyon Cedex

DB, France) – (2016) **(International reference book for pathologists commissioned by the World Health Organization)**

- *The mentioned book's chapters are directed to specialists in Oncology and Pathology, which are interested to the clinical application of mAbs.*

** These works, were commissioned by the Italian working group "invasion and metastasis", which is a sub-group of the Italian Cancer Society. These works are directed to medical students, specialists and researchers that are interested in studying the molecular mechanisms involved in tumor growth and progression. (Fully compiled by the applicant).*

RESEARCH AND DEVELOPMENTAL WORK

The applicant has been appointed as Professor of Histology and Anatomy at the University School for Registered Nurses also for the Academic Year 1999-2000, but he released this assignment because involved in a research project in Sweden.
During the previous year he introduced a new teaching program for this course. In the second half of the course each student had the responsibility to compile a detailed thesis on selected organ and/or apparatus, which was evaluated by the teacher. After evaluation, each student was invited to present his own work to the class fellows in form of "seminar".
In this manner the teaching program has been always completed and students were facilitated to interact each other on scientific issues. The questionnaire for the final evaluation was prepared on the bases of the work presented by the students.

Development work within postgraduate studies, M.D, Ph: D., and Specialists

St. Andrea Melanoma Working Group (SAMWG). Since January 2008 the applicant created a multidisciplinary working group on melanoma at St. Andrea Hospital, in which basic scientists, oncologists, dermatologists and pathologists interact each other.
Lab meetings, seminars and clinical rounds are organized twice for month at the Department of Pathology. Meetings and seminars are opened also to the Medical students, residential students and PhD students. Potential research projects, thesis and PhD programs are considered and discussed and assigned after a multidisciplinary evaluation.

CLINICAL PORTFOLIO

Approved by the Board of Research, January 1st 2008
Karolinska Institute

ARMANDO BARTOLAZZI M.D., Ph.D.

2022

CLINICAL COMPETENCE AND FORMAL TRAINING

Completed clinical training documented through specialist competence.

10/04/1987: M.D. Degree University "La Sapienza", Rome, Italy, (summa cum laude)

1987: M.D. Licence, University "La Sapienza", Rome, Italy.

- Internship in Internal Medicine, (1987-1988), I° Clinica Medica
Policlinico Umberto I, University "La Sapienza", Rome, Italy.

-1988: General Doctor USL/Roma 3, June1988-July1988, with full responsibility for more than 1000 patients.

1999- Specialist Degree in Histology and Anatomic Pathology (1994-1999), with final thesis and Diploma (*summa cum laude).* University "La Sapienza" of Rome, Italy (Title: Galectin-3 and Thyroid Cancer).Roma 24-11-1999

1991: Specialist Degree in Clinical and Experimental Oncology and **Ph.D. program** (1987-1991) with final dissertation and Diploma (*summa cum laude*). National Cancer institute Regina Elena Rome, IRCCS and University "La Sapienza", Rome, Italy (Title: Production and characterization of monoclonal antibodies to Vla-3 integrin).- Roma 28-10-1991

Number of years as specialist, and experience in inpatient and outpatient care.

The applicant worked ***since 1991 as specialist in Oncology*** in particular in the area of diagnosis and follow-up of cancer patients. (Outpatient care).

From December 1993 to October 2001: ***Assistant Professor of Pathology*** at the National Cancer Institute Regina Elena of Rome (permanent position). (40.000 histological slides/year, 9000 intra-operative diagnosis/year for five pathologists at the Department - Two years work experience (1994-95) were maturated at the Cytology Department. (Inpatient and outpatient care)

January 1997- March 99: ***designed pathologist*** for the multi-disciplinary clinical and experimental working group on Breast Cancer (600 cases/year) at the National Cancer Institute, Regina Elena of Rome. (Inpatient and outpatient care)

January 1997- March 99: ***designed pathologist*** for the multi-disciplinary clinical and experimental working group on Colon Cancer (180 cases/year) at the National Cancer Institute, Regina Elena of Rome. (Inpatient and outpatient care)

January 1997- March 99: ***designed pathologist*** for the multi-disciplinary clinical and experimental working group on Melanoma (110 cases/year), at the National Cancer Institute, Regina Elena of Rome. (Inpatient and outpatient care)

January 1996- March 99: ***designed pathologist*** for the autoptic service at the National Cancer Institute, Regina Elena of Rome.

1996-1998: ***Consultant Pathologist*** at the General Hospital S.S. Salvatore, (Regional Hospital), USL RM/25 Rome, and Italy. (Inpatient and outpatient care; 5155 histological diagnoses, personally performed).

2001: ***Consultant Pathologist (part time)*** for melanoma in collaboration with Prof. Olle Larsson, at Dept. of Oncology-Pathology Karolinska Hospital, Stockholm, Sweden.

Since November 2001-present: Dirigente Primo Livello (Associated Professor of Pathology) Sant' Andrea University Hospital, II° Faculty of Medicine, University La Sapienza, Rome, Italy (about 12.000 histological cases / year) (permanent position) *.

** Since 2003 the applicant got a high specialized profile in thyroid pathology and starting from 02/2019 in dermatopathology, incuding Melanoma and head and neck tumors (St. Andrea University Hospital)*

Experience of on-call services

More than 25 years experience of on-call services for intra-operative diagnosis (histological diagnosis on frozen tissue sections)
NCI Regina Elena of Rome and Sant' Andrea University Hospital.

Special Clinical competence/profile area

- Tumor Pathology (subspecialty expertise in Head and Neck Cancer, Thyroid cancer and Skin Cancer including Melanoma).
-Diagnosis in Oncology (clinical and histopathological diagnosis, immunodiagnosis, molecular diagnosis).
-Intra-operative histological diagnosis.
- Autoptic diagnosis.
-Clinical management of cancer patients during the diagnostic phase and follow-up.
-Tumor pathology and tumor physiopathology related problems.

Since 2003 the applicant got a high specialized profile in thyroid pathology and dermatopathology at St. Andrea Universitary Hospital (He plays as consultant for many external cases collected at National and International level)

Thyroid Cancer Expert nomination: World Health Organization (Lyon cedex DB, France). WHO expert for thyroid Cancer , June 30, 2016

-**Translational Research in Oncology and Pathology** (i.e. 30 years of experience in production, characterization and clinical applications of monoclonal antibodies directed to tumor associated antigens. Some of these reagents are commercially available and routinely used in several National and International Institutions for immunodiagnosis, and differential diagnosis of neoplastic diseases, for characterizing cancers of unknown origin, and for evaluating intra- and post-operatively, the minimal residual disease).
- Development and validation for clinical use of galectin-3 thyrotest for preoperative characterization of thyroid nodules (commercially available).
- Research projects for tumor imaging *in vivo* based on galectin-3 immunotargeting are running (Collaboration with Techniska University of Munchen, Germany and Mabtech Solna, Sweden)

SPECIFIC CLINICAL AND EXPERIMENTAL ACTIVITIES PERFORMED AT THE DEPARTMENT OF PATHOLOGY SANT'ANDREA UNIVERSITY HOSPITAL, ROME

A.B. is mostly involved in Cancer Diagnosis with specific expertise in Dermatopathology (in particular Skin Cancer and pigmented lesions), Head and Neck pathology (Thyroid, larynx, salivary glands, oral cavity), Soft Tissue Tumors, and several solid tumors. Since 2003 the applicant got a high-specialized profile in thyroid pathology

The following table shows the results of the cumulative diagnostic activity at the Department of Pathology, St. Andrea Hospital, performed during the last 15 years (definitive diagnostic reports personally signed by the applicant). This table has been downloaded from the Official WIN-SAP program archive of the Institute.

Years 2005-2021 (January 1st; December 31st)

year	Diagnostic reports signed By A.B.	Total diagnostic activity at the Department	
2005	2417	11187	
2006	2793	12508	
2007	1912	12830	
2008	2191	14139	
2009	2551	14904	
2010	2600	14752	
2011	2709	15191	
2012	2961	15845	
2013	3062	16191	
2014	2844	16373	
2015	2591	15903	
2016	2455	12771	
2017	2452	13215	
2018*	1270	13821	* Undersecretary of State Italian Ministry of Health (by June 2018-Sept 2019)
2019*	0		
2020-2022	5300	24.000	
Total diagnostic activity	**40108**	**223.630**	

3 Clinical development work

- **Development/establishment/evaluation of new treatment strategies.**

The applicant maturated 30 years of experiences in production and characterization of mAbs directed to tumor associated antigens with the aim to improve the diagnostic accuracy of conventional cytology and histology in cancer diagnosis.
As reported in the specific scientific portfolio, several of these mAbs are routinely used in National and International Institutions for improving the diagnostic accuracy of conventional cytology and histology for different solid tumors.

i) By the applicant an **International Multicentre Study** entitled: ***Galectin-3 and CD44v6 isoforms in the preoperative evaluation of thyroid nodules,*** in which a new immuno-diagnostic method for thyroid nodules has been proposed (1999-2001). Participants: (Italy, USA, Japan, Sweden) (The applicant was the proponent and study coordinator, see A. Bartolazzi et al. The Lancet 357: 1644-50, 2001).

ii) By the applicant **a National (Italian) Prospective Multicentre Study entitled: *From the bench to the bed side: galectin-3 Thyrotest for improving the diagnostic accuracy of conventional thyroid FNA cytology***. Supported from Compagnia di San Paolo (2002-2006). In this translational study the new diagnostic test-method for the preoperative characterization of thyroid cancer was validated for the clinical use. The clinical and therapeutic guidelines for patients bearing Thy3 thyroid nodules were defined. 15 Italian University Hospitals and more then 60 Medical Doctors, Biologist and Scientists were involved (The applicant played as proponent and study coordinator, see A. Bartolazzi et al. The Lancet Oncology 9(6):543-9. Epub 2008 May 19th).

iii) By the applicant**: Development of radiolabeled galectin-3 mAbs for in vivo imaging of thyroid tumors (since January 2005).** Collaboration with Prof. Francesco Scopinaro Dept. of Nuclear Medicine University La Sapienza, Rome, and Prof. Alessandro Soluri, Dept of Physic at the National Research Council, Rome. (A. Bartolazzi proponent and study coordinator, see PLoS ONE. 3(11):e3768. Epub 2008 Nov20th.). This project has been recently implemented with an International collaboration with Techniska Univrsity of Munchen, Germany) see Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23. ; J Nucl Med. 2019 Jun;60(6):770-776. *;* Thyroid. 2020 Apr 30. doi: 10.1089/thy.2019.0670. *(patented)*

iv) Collaboration with University of Rome Tor Vergata Department of Bio-Engeneering (prof. Arnaldo D'Amico, Prof. Giorgio Pennazza, Prof. Corrado Di Natale) Application of sensor microarrays in the clinical practice. Lung Carcinoma and Melanoma diagnosis. **(The applicant is responsible of the biological and medical part of this study)**
Sci Rep. 2015 Aug 25;5:13246. doi: 10.1038/srep13246.

v) By the applicant: **Galectin-3 mediated molecular interactions in NSCLC (since January 2008).** Collaboration with Prof. Rolf Lewensohn KBC Karolinska Hospital Solna. The aberrant

expression of galectin-3 in tumor cells has been demonstrated to be critical for the resistance to chemotherapy in several tumor models. Experiments of galectin-3 transfection in thyroid and breast carcinoma cell lines demonstrated that cells expressing galectin-3 are less sensitive to specific chemotherapy. Our preliminary results on NSCLCs tissue microarrays, obtained in collaboration with Rolf Lewensohn 's group at KBC tissue, demonstrate that about 50% of Lung adenocarcinomas and squamous cell carcinomas express this molecule.
Considering the fact that no efficient chemotherapy treatment for NSCLCs is currently available, we think that this tumor model represents a good target for studying the biological effects mediated by galectin-3.
In this project that will be articulated in different tasks we want to investigate the biological significance of galectin-3 expression in these lesions by using *in vivo* and *in vitro* experimental models with the aim to demonstrate the potential prognostic value of this marker and eventually a biological rationale for a molecular targeted therapy.
The role of Galectin-3 as predictive biomarker of tumor responsiveness to checkpoint inhibitors has been recently discovered by our group (Capalbo C, Scafetta G, Filetti M, Marchetti P, **Bartolazzi A**. Predictive Biomarkers for Checkpoint Inhibitor-Based Immunotherapy: The Galectin-3 Signature in NSCLCs. Int J Mol Sci. 2019 Mar 31;20(7). pii: E1607. doi: 10.3390/ijms20071607). ***A national multicenter study for validation and clinical translation of this*** **application is running (2020). (The applicant is the proponent and responsible of this study)**

- **Development of health-care programmes.**

1997-1999. The applicant contributed to define the Clinical-therapeutic guidelines for Breast Cancer, at the NCI Regina Elena of Rome, Italy.

1997-1999. The applicant contributed to define the Clinical-therapeutic guidelines for Colon Cancer, at the NCI Regina Elena of Rome, Italy.

1997-1999. The applicant contributed to define the Clinical-therapeutic guidelines for Melanoma, at the NCI Regina Elena of Rome, Italy.

2001-2004: The applicant recently contributed to define the clinical and therapeutic guidelines for the management of patients bearing thyroid nodular diseases (National and International Level) (see specific scientific portfolio for detail).

2003: Contribution to define the guidelines for melanoma histological diagnosis (Sant' Andrea Hospital and University La Sapienza – Rome).

LEADERSHIP, DEVELOPMENT AND WORKPLACE RELATIONS PORTFOLIO

Approved by the Board of Research, January 1st 2008
Karolinska Institute

ARMANDO BARTOLAZZI M.D., Ph.D.

2022

Leadership positions

1. **Since 1994**: Principal Investigator of an independent research group supported by peer-reviewed grants from different agencies. N.C.I- Regina Elena of Rome (IRCCS) and St. Andrea University Hospital, Rome, Italy. *(See scientific portfolio for details).*

2. ***Co-organizer and responsible*** of the human tissue bank (frozen biopsies), and cell culture bank at the NCI Regina Elena of Rome.
The availability of this material is strategic for establishing collaborative projects with scientific Institutions interested in mAbs screening, validation of immunochemical tests, identification of tumor associated antigens, production of new mAbs and for creating collaborative research projects with National and International laboratories.

3. ***Organizer and coordinator*** of an International multicentre study involving U.S.A, Japan, Italy and Sweden, aimed to validate the galectin-3 thyrotest for the pre-operative diagnosis of thyroid cancer. *(see The Lancet 357: 1644-50, 2001 and the scientific portfolio for detail).*

4. ***Organizer and coordinator*** of a National Multicentre study for transfering in the clinical setting the galectin-3 thyreotest and for defining the clinical-therapeutic guidelines for thyroid nodular diseases. (see *The Lancet Oncology 9(6):543-9. Epub 2008 May 19th and the scientific portfolio for detail).*

5. 1998-2001, Elected member of the Technical and Scientific committee (TSC) at the NCI Regina Elena of Rome, Italy .

6. **St. Andrea Melanoma Working Group (SAMWG).** Since January 2008 the applicant created a multidisciplinary working group on melanoma at St. Andrea Hospital, in which basic scientists, oncologists, dermatologists and pathologists interact each other. (see the scientific portfolio for details).

7) By the applicant**: Development of radiolabeled galectin-3 mAbs for *in vivo* imaging of thyroid tumors (since January 2005).** Collaboration with Prof. Francesco Scopinaro Dept. of Nuclear Medicine University La Sapienza, Rome, and Prof. Alessandro Soluri, Dept of Physic at the National Research Council, Rome. (A. Bartolazzi proponent and study coordinator, see PLoS ONE. 3(11):e3768. Epub 2008 Nov20th.). Recent implementation of the technique, which use an immunoPET strategy for imaging gal-3 positive tumors in vivo- Collaboration with Dr. Calogero D'Alessandria and Markus Schwaiger, Techniska University of Munchen, Germany. Cancer Res. 2016 Jun 15;76(12):3583-92. doi: 10.1158/0008-5472.CAN-15-3046. Epub 2016 May 23.

8) Collaboration with University of Rome Tor Vergata Department of Bio-Engeneering (prof. Arnaldo D'Amico, Prof. Giorgio Pennazza, Prof. Corrado Di Natale) **Application of sensor microarrays in the clinical practice. Lung Carcinoma and Melanoma diagnosis.** (The applicant is responsible of the biological and medical part of this study). Sci Rep. 2015 Aug 25;5:13246. doi: 10.1038/srep13246 (*running project).*

9) By the applicant: **Galectin-3 mediated molecular interactions in NSCLC (since January 2008).** Collaboration with Prof. Rolf Lewensohn KBC Karolinska Hospital Solna.
(The applicant is the proponent and responsible of this study) January 2008- ***running project).***

International Congress organiser

- The applicant organized personally the International meeting entitled: *Highlights of thyroid Cancer Pathology and Molecular Biology- Rome, February 13th, 2009*, in a prestigious place "Sala della Protomoteca in Campidoglio provided by the Italian Government. He got financial support from the bank Compagnia di San Paolo and from the Italian Association for Cancer Research. He got also credits from The Italian Ministry of Work and Public Health. Invited speakers and chairman: Gianni Bussolati, Mauro Papotti, Virginia LiVolsi, Juan Rosai, Manuel Sobrinho-Simoes, Marco Volante, Armando Bartolazzi, Salvatore Sciacchitano, Yuri Nikiforov, Giovanni Tallini, Alfredo Fusco, Massimo Santoro.

- President of the 68th session of the WHO regional Committee for Europe Rome, Italy 17-20 September 2018

Head of section, director of studies, programme director, education responsibility.

Organizer and Director of the study described in points 3-4 and 7-9 listed above. Responsibility of the clinical courses already listed in the pedagogical portfolio *(see the specific portfolio for detail).*

Supervisor/lecturer/mentor

Since 1994 The applicant played as supervisor, co-supervisor and mentor for more than 30 Medical students, PhD students, Lab technicians, post-doc and specialists in Pathology and Oncology at University La Sapienza of Rome and at the National Cancer Institute Regina Elena of Rome. *(See specific portfolia for more details).*

3.3 Workplace and social leadership competence

See references below.

5. ***1998-2001,*** Elected member of the Technical and Scientific committee (TSC) at the NCI Regina Elena of Rome, Italy .

The applicant has full administrative responsibility for the grant and salary of the research group.

- **Building up team-based/multi-disciplinary collaborative clinical projects**

St. Andrea Melanoma Working Group (SAMWG). Since January 2008 the applicant created a multidisciplinary working group on melanoma at St. Andrea Hospital, in which basic scientists, oncologists, dermatologists and pathologists interact each other. (see the scientific portfolio for details).

- **Ability to lead and co-operate with colleagues and other personnel groups within healthcare.**

Specific references for this point can be easily derived by the number of scientific collaborations at National and International level, by organization of multicentre studies successfully concluded, by the number of running projects in collavboration with International Institutions and by the number and quality of publications

(see specific portfolio for details).

3.4 Clinical leadership and co-operation competence.

See the specific points 1 to 6 above

Formal Public Competitions for leader positions

1) Ready to work as Chairman of the Pathology Department, at the National Cancer Institute IST of Genova, Italy. (U.O.C. Director of the Pathology Department) Genova – 19-05-2004. (Prof. Juan Rosai in the evaluation committee).

2) Ready for position of Scientist/researcher project Leader in Biomedicine at Karolinska Institute, Stockholm, Sweden – International competition placed in the top rank (4th out of 33 applicants) – Oslo 20 th May, 2002 (Prof. Jan Carlstedt-Duke).

3) Ready to work as Chairman of the Pathology Department at Karolinska University Hospital, Stockhlm, Sweden. International Competition . 3th in the rank (Prof. Peter Collins University of Cambridge; January 23, 2001.

4) Ready for the position of professorship in Tumor Pathology combined with the position as Chief Physician at Karolinska Institute (Full Professor). Internationaò competition; 3th in the rank (Prof. Anne-Lise Borresen-Dale; Oslo August 24, 2009.

Strategic competence

To promote translational research programs in oncology and tumor pathology at National and International level.

Innovation experience

- **Patent**

Anticorpi monoclonali anti-galectina-3 radio marcati per visualizzazione e radio ablazione in vivo di tumori galectina-3 positivi

Inventor: Armando Bartolazzi

Co-inventors: Francesco Scopinaro

Alberto Signore

Rome February 2nd 2008, Patent. N. RM2008A000097

Development of products

- Galectin-3 thyrotest (Mabtech, Nacka, Sweden and Space import&export, Milan, Italy), Commercially available.

- Several mAbs to tumor associated antigens and integrin molecules, commercially available.

4.2 Entrepreneurship

Good skills to organize and co-ordinate multicentre studies at National and International level and to collaborate in translational research joint projects. Full independence in grants applications *(see specific portfolio for details).*

Since 2006: Organization, supervision and quality control of the surgical pathology unit, pathology laboratory, Gruppo ARTEMISIA - Roma

5 Workplace relations

The applicant is very well-known for his good workplace relations. He is very open to collaborate with people interested in translational research. Since 1993 the time of his first experience in a foreign laboratory (MGH, Pathology Research Lab., Harvard Medical School, Boston, USA) he keeps excellent relationships with colleagues all around the world. Some of them become very good friends and there are still active collaborations. Specific detail on this issue can be obtained by the previous laboratory's Directors, which know the applicant from many years. Some of them are listed below:

Pier Giorgio Natali M.D., Ph.D.,
Past Scientific Director of the N.C.I. Regina Elena, Rome, Italy. Director of Immunology Laboratory and Molecular Pathology Lab. at C.R.S. – I.R.E. via delle Messi d'Oro 156, Rome, Italy. E-mail: Natali@ifo.it Phone: 331-4832030;

Olle Larsson M.D., Ph.D., Professor
Professor of Pathology, Chief of the Cellular and Molecular Tumor Pathology Laboratory, Cancer Centre Karolinska, Karolinska Hospital, Stockholm, Sweden.
E-Mail: Olle.Larsson@ki.se
Fax: +46-8-321047

Ivan Stamenkovic M.D., Ph.D, Professor: Past Director of the Molecular Pathology Unit, at MGH, Harvard Medical School, Boston, Usa. Professor of Experimental Pathology, Division of Experimental Pathology, Institute of Pathology, CHUV, Lausanne, Switzerland. **Ivan.Stamenkovic@chuv.hospvd.ch**

Prof. Dr. Dario Neri, ETH Zurich, Institute of Pharmaceutical Sciences, HCI G392.4 Vladimir-Prelog-Weg 1-5/10 8093/ Zurich, Switzerland. Phone +41446337401;

E-mail: neri@pharma.ethz.ch

5.1 Collaboration with the community

Media: Several interviews at the Italian televisions and many citations on the national and international newspapers *(See specific scientific portfolio for detail)*

Participation in exhibitions and popular science events addressed to the general public.

Cancer day, organized by the Italian Association for Cancer Research. The applicant participated since 1994 to public manifestation for promoting Cancer Research in Italy (once for year)

Collaboration with Industry

1988: Participation in several commissioned studies for characterisation of mAbs to be used in clinical practice (i.e. immunohistochemistry, immunoscintigraphy etc.).(Contracts Legge 46, NIH-Industry, Sorin Biomedica).

5.2 Committee work

- Referee duties for research applications at an international level

Since year 2000: Member of the Commission of experts for evaluation of EU grants applications (Ref: EE1998 1B02438) (on call).

1998-2001, Elected member of the Technical and Scientific committee (TSC) at the NCI Regina Elena of Rome, Italy.

- September 2018, September 2019: President of the 68th session of the WHO regional Committee for Europe;

- June 2018- August 2019 – Undersecretary of State Italian Ministry of Health

-- Since 2001 Life Member of UICC "International Union against Cancer"

- Since November 2019: Elected President of the National Scientific Committee of L.I.L.T. (Lega Italiana per la Lotta ai Tumori)

5.3 Active work on ethical issues, equal opportunities, the workplace environment and environmental questions:

Since August 2015 the applicant is an active official member of CUG "*Comitato Unico di Garanzia per le pari opportunità, la valorizzazione del benessere di chi lavora e contro le discriminazioni* " at Sant'Andrea Univerity Hospital. Rome, Italy.

Incarichi Ministeriali Con Delega del Ministro (Giugno 2018-Agosto 2019)

Membro del Comitato Nazionale anti-Contraffazione (c/o MISE)

Membro del Comitato per la prevenzione della Violenza sulle Donne (Presidenza del Consiglio)

Membro del Comitato di Controllo Malattie (Ministero della Salute)

References:

Pier Giorgio Natali M.D., Ph.D.,
Past Scientific Director of the N.C.I. Regina Elena, Rome, Italy. Director of Immunology Laboratory and Molecular Pathology Lab. at C.R.S. – I.R.E. via delle Messi d'Oro 156, Rome, Italy. E-mail: Natali@ifo.it Phone: 331-4832030;

Olle Larsson M.D., Ph.D., Professor
Professor of Pathology, Chief of the Cellular and Molecular Tumor Pathology Laboratory, Cancer Centre Karolinska, Karolinska Hospital, Stockholm, Sweden.
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Ivan Stamenkovic M.D., Ph.D, Professor: Past Director of the Molecular Pathology Unit, at MGH, Harvard Medical School, Boston, Usa. Professor of Experimental Pathology, Division of Experimental Pathology, Institute of Pathology, CHUV, Lausanne, Switzerland. **Ivan.Stamenkovic@chuv.hospvd.ch**

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Roma 5 Maggio 2023 (74 pagine CV) Armando Bartolazzi

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