

Sara Baccarini, Ph.D.

Date of birth: 27/10/1967 **Nationality:** Italian
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***About me:** Researcher with wide bio-medical training, competences and experience, gained in Italy and the US, in gender medicine, oncology (carcinogenesis, metastasis, therapies), environmental health, non-communicable diseases, immunology, virology (vaccines, clinical trials). Proactive in European and national research.*

EDUCATION AND TRAINING

1995, **Degree in Biological Science**

“La Sapienza” University, Rome, Italy

2001, **Ph.D. in Medical Oncology**

“G. D’Annunzio” University, Chieti, Italy

2000, **International Fellow of the Consiglio Nazionale per le Ricerche**

“Wayne State” University, Detroit (MI), USA

WORK EXPERIENCE

January 2023 – to date, **Adjunct Researcher**

Istituto Superiore di Sanità, Center for Gender Medicine, Rome, Italy

Research projects: “Respiratory allergic asthma-induced inflammation: searching for indicators of susceptibility to lung cancer “PNRR-MCNT2-2023-12377077 (Dr. Giovanna Schiavoni, Istituto Superiore di Sanità, Rome, Italy)

July 2019 – December 2022, **Adjunct Researcher**

Istituto Superiore di Sanità, Department of Oncology and Molecular Medicine, Rome

Activities: •Support activities in European and National research projects’ designing, writing and submission

•Support activities to the European infrastructure for translational medicine

•Community building and networking

Research projects: •“Improving personalised glioblastoma care by intertwined immunomics and artificial intelligence approaches” – EraPerMed 2022-245 (Dr. Else Ingrid, Oslo University Hospital, Norway)

•“Targeting phospholipid metabolism as a new Achilles heel for metformin repurposing in antitumor triple breast cancer strategy” – ISS20-d2bffb2416aa (Dr. Egidio Iorio, Istituto Superiore di Sanità, Rome, Italy)

July 2013 – June 2019, **Adjunct Researcher**

Istituto Superiore di Sanità, Department of Environment and Health, Rome, Italy

Research projects: •New strategies for diagnostic, therapeutic and clinical care in metabolic and cardiovascular diseases - RF 2013-02357791

•Coordination of base excision repair and mismatch repair processing of chemotherapy-induced DNA damage – AIRC 2012 IG#13320

•Biomonitoring and toxicity of air pollutants of Taranto territory – Programma CCM 2013-5M52 (Loredana Musmeci, Istituto Superiore di Sanità, Rome, Italy)

July 2001 - 2012, **Adjunct Researcher**

Istituto Superiore di Sanità, AIDS National Center, Rome, Italy

Research activities: •Clinical studies of immune responses in HIV-positive patients from developing countries within an experimental vaccination protocol against HIV/AIDS in South-Africa.

•Pre-clinical studies of HIV-Tat vaccine interactions with highly active antiretroviral therapies in small animal models.

•Development of therapeutic strategies against Effusion Primary Lymphomas.

•Studies of HIV protease inhibitors’ effects in the pharmacologic treatment of the angiogenic processes associated with Kaposi’s Sarcoma.

January 2000 – April 2001, **International Fellow of the Consiglio Nazionale per le Ricerche**
Wayne State University, Detroit, MI, USA
Research Project: Role of Mac2/Galectin-3 in tumor angiogenesis and metastases.
Supervisor: Dr. Avraham Raz

June 1998 – December 1999, **PH.D. Student**
G. D'Annunzio University, Laboratory of Medical Oncology, Chieti
Research activity: Role of the cellular 90K/Mac2-BP glycoprotein in tumor metastasis.
Supervisor: Prof. Stefano Iacobelli

December 1996 – May 1998, **Graduate laboratory researcher**
Istituto Superiore di Sanità, Biology and Genetics of Animal Viruses Division, Laboratory of Virology, Roma
Research Projects: •Tumor eradication by chemo-immunotherapy in pre-clinical models.
•Role of IFN α induced-CD8⁺ T cells in the generation of an antitumor response.
Supervisor: Dr. Enrico Proietti

February 1994 – December 1996, **Thesis Student**
Istituto Superiore di Sanità, Rome
Research activities: Down-regulation of CD4 in human cell lines after HIV infection
Detection of phosphatidylcholine-phospholipase C in H-ras transformed cell lines
Supervisor: Dr. Filippo Belardelli

PROJECT'S PRINCIPAL INVESTIGATOR-PI

April 2024 – April 2029: Three Research lines:

- "Use of sex- and gender-specific molecular biomarkers for early diagnosis and the prognosis of malignant mesothelioma in subjects previously professionally exposed to asbestos and in subjects exposed to environmental causes"
- "Analysis of health data disaggregated by sex/gender to establish personalized health paths"
- "Integrated approach for the evaluation of the effects of environmental contaminants metabolic processes of interest to the Lucanian population and impact on health from a perspective of gender"

Within the "Lucani: Ambiente e Salute (LucAS)" project (Dr. Rosa Anna Cifarelli, Azienda per la Ricerca e Prevenzione Ambientale, Basilicata, Italy)

RESEARCH INTERESTS

- ✦ **ONCOLOGY:** THERAPIES BASED ON PROTEINS/PROTEINASES/CHEMOTHERAPY/ADOPTIVE IMMUNOTHERAPY, TUMOR IMMUNOLOGY, METASTATIZATION, ANGIOGENESIS
- ✦ **ENVIRONMENTAL HEALTH:** CARCINOGENESIS AND CANCER GENETIC
- ✦ **IMMUNOLOGY:** CANCER AND ENVIRONMENTAL HEALTH IMMUNOLOGY
- ✦ **SEX AND GENDER MEDICINE**
- ✦ **VIROLOGY AND VACCINES**

CONGRESSES

3-5 Dicembre 2023 – "PromIS meets the European Parliament: open dialogue on health priorities", Bruxelles, Belgium.

TEACHING EXPERIENCE

6 June 2024 – "La Sapienza University", Rome, Italy.
Second degree Master's Course in Mutational Oncology and Precision Medicine – 4th Programme:
"Precision in gender medicine: toxicity and efficacy".

PUBLICATIONS

1. **PALLESCHI S, GUGLIELMI V, NISTICÒ L, FERRERI C, TABOLACCI C, FACCHIANO F, IORIO E, GIULIANI A, BRESCIANINI S, MEDDA E, FAGNANI C, ROSSI B, MINOPRIO A, CHIRICO M, PISANU ME, DI NOLFO F, FORTINI P, SIMONELLI V, BACCARINI S, LATERZA S, MORRETTI T, DELL'ORSO A, MANGANELLO F,**

- GENTILESCHI P, SBRACCIA P, DOGLIOTTI E. A multi-marker intergative analysis reveals benefits and risks of bariatric surgery. *Sci Rep.* 2022 Nov 7;12(1):18877. doi: 10.1038/s41598-022-23241-6.PMID: 36344536
2. D'ERRICO M, PARLANTI E, PASCUCCI B, FORTINI P, BACCARINI S, SIMONELLI V, DOGLIOTTI E. Single nucleotide polymorphisms in DNA glycosylases: From function to disease. *Free Radic Biol Med.* 2017 Jun; 107:278-291. doi: 10.1016/j.freeradbiomed.2016.12.002. Epub 2016 Dec 6. PMID: 27932076.
 3. PASCUCCI B., D'ERRICO MR., ROMAGNOLI A., DE NUCCIO C., SAVINO M., PIETRAFORTE D., LANZAFAME M., CALCAGNILE S.A., FORTINI P., BACCARINI S., ORIOLI D., DEGAN P., VISENTIN S., STEFANINI M., ISIDORO C., FIMIA G.M., DOGLIOTTI E. Overexpression of parkin rescues the defective mitochondrial phenotype of Cockayne Syndrome A cells. *Oncotarget*, 2016 Jun 9. doi: 10.18632/oncotarget.9913. PMID: 29262528; PMCID: PMC5732694.
 4. FORTINI P., FERRETTI C., IORIO E., CAGNIN M., GARRIBA L., PIETRAFORTE D., FALCHI M., PASCUCCI B., BACCARINI S., MORANI F., PHADNGAM S., DE LUCA G., ISIDORO C. AND DOGLIOTTI E. The fine tuning of metabolism, autophagy and differentiation during in vitro myogenesis: p53 plays a role. *Cell Death and Disease*, 2016 Mar 31;7: e2168. doi: 10.1038/cddis.2016.50. PMID: 27031965; PMCID: PMC4823951.
 5. BRACCI L., MASCELLA F., SESTILI P., LA SORSA V., VALENTINI M., CANINI I., BACCARINI S., MACCARI S. RAMONI C., BELARDELLI F., PROIETTI E. Cyclophosphamide enhances the antitumor efficacy of adoptively transferred immune cells through the induction of cytokine expression, B-cell and T-cell homeostatic proliferation, and specific tumor infiltration. *Clin Cancer Res.* 2007 Jan 15;13(2 Pt 1):644-53. doi: 10.1158/1078-0432.CCR-06-1209. PMID: 17255288.
 6. SGADARI C., TOSCHI E., BACIGALUPO I., SABATUCCI M., PALLADINO C., BACCARINI S., CARLEI D., SCIARANGHELLA G., COMPAGNONI D., CHIOZZINI C., BARILLARI G., MONINI P., ENSOLI B. Tumori ed infezioni da HIV: Patogenesi e studi clinici del GICAT, *Patogenesi del Sarcoma di Kaposi*, Gruppo Italiano Cooperativo e Tumori GICAT, 11: 15-26, 2006.
 7. MONINI P., SGADARI C., TOSCHI E., BARILLARI G., BACIGALUPO I., BACCARINI S., CHIOZZINI C., PALLADINO C., CARLEI D., SCIARANGHELLA G., SABATUCCI M., CENCIONI G., ENSOLI B. Tumori ed infezioni da HIV: Un modello di studio della cancerogenesi, *Sarcoma di Kaposi: attività antiblastica degli inibitori delle proteasi e nuove combinazioni di chemioterapia e HAART*, Gruppo Italiano Cooperativo e Tumori GICAT, 10: 65-74, 2005.
 8. GROSSO G., SGADARI C., BACILLARI G., TOSCHI E., BACIGALUPO I., CARNEI D., PALADINI C., BACCARINI S., MALAVASI L., MORACCI G., LEONE P., CHIOZZINI C., MONINI P., ENSOLI B. Trattamento del sarcoma di Kaposi mediante gli inibitori della proteasi di HIV [HIV protease inhibitors for the treatment of Kaposi's sarcoma]. *Recenti Prog Med.* 2003 Feb;94(2):69-74. Italian. PMID: 12908373.
 9. NANGIA-MAKKER P., HOGAN V., BACCARINI S., TAIT L., RAZ. A. Inhibition of human cancer cell growth and metastasis in nude mice by oral intake of Modified Citrus Pectin. *Journal of the National Cancer Institute*, 2002 Dec 18; 94(24):1854-62. doi: 10.1093/jnci/94.24.1854. PMID: 12488479.
 10. TOSCHI E., SGADARI C., MONINI P., BARILLARI G., BACIGALUPO I., PALLADINO C., BACCARINI S., CARLEI D., GROSSO G., SIRIANNI M.C. ENSOLI B. Treatment of Kaposi's sarcoma-an update. *Anticancer Drugs*, 2002 Nov; 13(10):977-87. doi: 10.1097/00001813-200211000-00001. PMID: 12439331.
 11. SGADARI C., MONINI P., TOSCHI E., BACCARINI S., GROSSO M.G., MORACCI G., MALAVASI L., ENSOLI B. HIV protease inhibitors Kaposi's sarcoma by blocking angiogenesis and tumor cell invasion. *Haematologica*, 87 (suppl. 1 to 11): 37-41, 2002.
 12. SIRIANNI M.C., VINCENTI L., TOPINO S., GIOVANETTI A., MAZZETTA F., LIBI F., SCARAMUZZI D., ANDRONI M., PINTER E., BACCARINI S., REZZA G., MONINI P., ENSOLI B. NK cell activity controls human herpesvirus 8 latent infection and is restored upon highly activity antiretroviral therapy in AIDS patients with regressing Kaposi's sarcoma. *European Journal of Immunology*, 2002 Oct; 32(10):2711-20. doi: 10.1002/1521-4141(200210) 32: 10<2711: AID-IMMU2711>3.0.CO;2-3. PMID: 12355422.
 13. SGADARI C., BACILLARI G., TOSCHI E., CARNEI D., BACIGALUPO I., BACCARINI S., PALLADINO C., LEONE P., BAGARINI R., MALAVASI L., CAFARO A., FALCHI M., VALDEMBRI D., REZZA G., BUSSOLINO F., MONINI P., ENSOLI B. HIV protease inhibitors are potent anti-angiogenic molecules and promote regression of Kaposi sarcoma. *Nature Medicine*, 2002 Mar; 8(3):225-32. doi: 10.1038/nm0302-225. PMID: 11875492.

14. NANGIA-MAKKER P., BACCARINI S., RAZ A. Carbohydrate-recognition and angiogenesis. *Cancer and Metastasis Reviews*, 2000; 19(1-2):51-7. doi: 10.1023/a:1026540129688. PMID: 11191063.
15. NANGIA-MAKKER P., BACCARINI S., RAZ A. Carbohydrate-binding protein galectin-3: its role in metastasis, angiogenesis and apoptosis. *Current Topics in Biochemical Research*, 3: 51-57, 2000.
16. BELARDELLI F., FERRANTINI M., SANTINI S., BACCARINI S., PROIETTI E., THOUGH D. The induction of in vivo proliferation of long-lived CD44hi CD8+ T cells after the injection of tumor cells expressing IFN- α 1 into syngeneic mice. *Cancer Res.* 1998 Dec 15;58(24):5795-802. PMID: 9865738.
17. PROIETTI E., GRECO G., GARRONE B., BACCARINI S., MAURI C., VENDITTI M., CARLEI D., BELARDELLI F. Importance of Cyclophosphamide-induced bystander effect on T cells for a successful tumor eradication in response to adoptive immunotherapy in mice. *The Journal of Clinical Investigation*, 1998 Jan 15; 101(2):429-41. doi: 10.1172/JCI1348. PMID: 9435316; PMCID: PMC508583.
18. ROZZERA C., BACCARINI S., GENTILE M., TORRISI M.R., PROIETTI E., FEDERICO M., PULCIANI S. Stable transfection of provirus of Human Immunodeficiency Virus into a murine packaging cell line. *Acta Virologica* 1997 Apr; 41(2):105-10. PMID: 9219642.
19. PODO F., FERRETTI A., KNIJN A., KHANG P., CARPINELLI G., PULCIANI S., BACCARINI S., RAMONI C., BARLETTA B., PINI C. Detection of phosphatidylcholine-specific phospholipase C in NIH-3T3 fibroblasts and their H-RAS transformants: NMR and immunochemical studies. *Anticancer Research*, 1996 May-Jun; 16(3B):1399-412. PMID: 8694508.

ABSTRACTS

1. BUTTÒ S., BACCARINI S., BERNASCONI S., CENCI A., FANALES-BELASIO E., SANARICO N., TAVOSCHI L., DI ZEO L., ROVETTO C., SALVI E., NARINO P., CHIAPPI M., VARDAS E., ARAUJO J., SUKATI H., HOLMES H., ERFLE V., BARNETT S., CLERICI M., MALNATI M., POLI G., ENSOLI B. Cross-clade recognition of structural and regulatory HIV-1 antigens and virus neutralization by HIV-infected subjects from Sub-Saharan Africa; *International AIDS Symposium*, Rome, 17-20 July 2011.
2. BACCARINI S., SCIARANGHELLA G., GLOGHINI A., MALAVASI L., MORACCI G., CARLEI D., LEONE P., COMPAGNONI D., MARINELLI R., FALCHI M., SGADARI C., CARBONE A., ENSOLI B., MONINI P. Patogenesi dei linfomi ad effusione primaria. *V Programma Nazionale di ricerca sull'AIDS*, Rome, 6-2 May 2005.
3. MONINI P., SGADARI C., ALESSANDRI G., PALLADINO C., BACCARINI S., MORACCI G., BACIGALUPO I., TOSCHI E., BARILLARI G., ENSOLI B. Tat-targeted delivery of HIV-1 antigens to vascular and lymphatic endothelial cells for protective immunization: isolation of endothelial cells from human tonsils and detection of circulating endothelial cells in peripheral blood. *ISTISAN Congressi, V Programma Nazionale di ricerca sull'AIDS*, Roma, 6-2 Maggio 2005.
4. MONINI P., SGADARI C., GROSSO M.G., BELLINO S., TOSCHI E., BACIGALUPO I., SALVI E., LEONE P., REZZA G., ENSOLI B. Studio clinico di fase II per il trattamento del sarcoma di Kaposi Classico con inibitore della proteasi di HIV indinavir. *ISTISAN Congressi, V Programma Nazionale di ricerca sull'AIDS*, Roma, 6-2 Maggio 2005.
5. **Errata Corrige:** nel volume ISTISAN Congressi relativo al V Programma Nazionale di ricerca sull'AIDS a pagina 209 tra gli autori dello "Studio clinico di fase II per il trattamento del Sarcoma di Kaposi con inibitore della proteasi di HIV indinavir" vengono inseriti i nomi Michela Sabbatucci, Giulia Cencioni, Sara Baccarini, Gaia Schiaranghella
6. MONINI P., CHIOZZINI C., LEONE P., BACCARINI S., MORACCI G., GLOGHINI A., CARBONE A., ENSOLI B. Extracellular HIV-1 Tat protein induces primary effusion lymphoma cell (PEL) polarization and concentrates in cell uropodes where it recruits CD138/syndecan-1. *In: 14. International AIDS conference. Abstracts*; July 7-12; Barcellona, 2002.
7. SGADARI C., BARILLARI G., TOSCHI E., CARLEI D., BACIGALUPO I., PALLADINO C., MALAVASI L., BACCARINI S., BUGARINI R.M MARINELLI R., FALCHI M., VALDEMBRI D., BUSSOLINO F., MONINI P., ENSOLI B. HIV protease inhibitors block -angiogenesis and promote regression of Kaposi's sarcoma. *In: 14. International AIDS conference. Abstracts*; July 7-12; Barcellona, 2002.
8. FERRETTI A., KNIJN A., ZHANG P., PULCIANI S., BACCARINI S., PODO F. Studies on phosphatidyl hydrolysis in NIH-3T3 fibroblasts and their *ras* transformants. *Anticancer Research, Abstracts of the fifth international conference of Anticancer Research*, October 17-22, Corfù, 1995.
9. SALVI R., GARBUGLI A.R., DI CARO A., BENEDETTO A., PULCIANI S., BACCARINI S. Restoration of CD4 gene expression in CD4-negative C8166 cell clones following the transfection with ETS2 oncogene. *Eight Research project on AIDS*, progress report, pp.121, May 29-June 2, Rome 1995.

10. PODO F., FERRETTI A., KNIJN A., KHANG P., CARPINELLI G., PULCIANI S., BACCARINI S., RAMONI C., BARLETTA B., PINI C. NMR and immunofluorescence studies on enzymes of the "PC cycle" in tumor cells. *Anticancer Research, Abstracts of the fifth international conference of Anticancer Research*, October 17-22, Corfù, 1995.
11. PODO F., FERRETTI A., KNIJN A., KHANG P., CARPINELLI G., PULCIANI S., BACCARINI S., RAMONI C., BARLETTA B., PINI C. NMR and immunofluorescence studies on enzymes of the "PC cycle" in tumor cells. *Eurospin Annual, Symposium on Lipid Metabolism and Function in Cancer*, pp. 155, Roma, 1995-1996.

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