Arianna Calcinotto, PhD

PUBLICATIONS

- Publication metrics
- Original research articles
- Review articles
- Patents

Publication metrics

• Has published 31 papers in peer-reviewed international journals, of which:
  • 22 original research articles (total)
  • 6 original research articles (as first author, unique or shared)
  • 3 original research articles (as senior and/or corresponding author, unique or shared)
  • 9 reviews
• Average Journal Impact Factor (JIF) for papers as first/corresponding/senior author: 24.4.
• Total citations in *Google Scholar*: 2692; *ISI (Web of Science):* 1927; in *Scopus:* 2010.
• *Google Scholar h index*: 22; *ISI h index*: 18; *Scopus h index*: 17.

Full publication list available at:
• Google scholar: https://scholar.google.com/citations?user=xXcNooIAAAAJ&hl=it
• ORCID ID: 0000-0003-1746-6424.

Original research articles

Blue font: papers as last and/or corresponding author
Red font: papers as first author

1. Gasparri ML, Albasini S, Truffi M, Favilla K, Tagliaferri B, Piccotti F, Bossi D, Armatura G, **Calcinotto A**, Chiappa C, Combi F, Curcio A, Della Valle A, Ferrari G, Folli S, Ghilli M, Listorti C, Mancini S, Marinello P, Mele S, Pertusati A, Roncella M, Rossi L, Rovera F, Segattini S, Sgarella A, Tognali D, Corsi F. Low neutrophil-to-lymphocyte ratio and pan-immune-inflammation-value predict nodal pathologic complete response in 1274 breast cancer patients treated with neoadjuvant chemotherapy: a multicenter analysis. **Ther Adv Med Oncol. 2023** Sep 15;15:17588359231193732. doi: 10.1177/17588359231193732. eCollection 2023. PMID: 37720495
2. Brina D, Ponzoni A, Troiani M, Calì B, Pasquini E, Attanasio G, Mosole S, Mirenda M, D'Ambrosio M, Colucci M, Guccini I, Revandkar A, Alajati A, Tebaldi T, Donzel D, Lauria F, Parhizgari N, Valdata A, Maddalena M, **Calcinotto A**, Bolis M, Rinaldi A, Barry S, Rüschoff JH, Sabbadin M, Sumanasuriya S, Crespo M, Sharp A, Yuan W, Grinu M, Boyle A, Miller C, Trotman L, Delaleu N, Fassan M, Moch H, Viero G, de Bono J, Alimonti A. *The Akt/mTOR and MNK/eIF4E pathways rewire the prostate cancer translatome to secrete HGF, SPP1 and BGN and recruit suppressive myeloid cells.* **Nat Cancer. 2023** Jul 17. doi: 10.1038/s43018-023-00594-z. Online ahead of print. PMID: 37460872
3. Bancaro, N. C., B.; Troiani, M.; Elia, A.R.; Alvarez Arzola, R.; Attanasio, G.; Lai, P.; Crespo, M.; Gurel, B.; Pereira, R.; Guo, C.; Mosole, S.; Brina, D.; D'Ambrosio, M.; Pasquini, E.; Spataro, C.; Zagato, E.; Rinaldi, A.; Pedotti, M.; Di Lascio, S.; Meani, F.; Montopoli, M.; Ferrari, M.; Gallina, A.; Varani, L.; Pereira Mestre, R.; Bolis, M.; Gillessen Sommer, S.; de Bono, J.; **Calcinotto, A.*;** Alimonti, A.*. *Apolipoprotein E induces pathogenic senescent-like myeloid cells in prostate cancer.* **Cancer Cell. 2023 Mar 13;41(3):602-619.e11. doi: 10.1016/j.ccell.2023.02.004. Epub 2023 Mar 2. PMID: 36868226**

   Key findings: In prostate cancers, we have identified a persistent sub-population of neutrophils with peculiar pro-tumorigenic features. So far, neutrophils have been considered to have a short half-life. However, we found that cancer cells can favour and prolong the vitality of tumour-infiltrating neutrophils. Mechanistically, we have found that an

apolipoprotein secreted by prostate cancer cells promote the survival of tumor-infiltrating neutrophils that acquire features of senescent cells (defined as senescent-like neutrophils). Senescent-like neutrophils can survive for months in vivo and acquire higher pathogenic potential compared to short-life neutrophils. Intriguingly, as found for murine prostate tumours, also fresh human biopsies collected from prostate tumours were infiltrated by senescent-like neutrophils. Moreover, treatment with Romidepsin (HDAC I inhibitor) selectively kills senescent-like neutrophils in vitro and in vivo, inducing tumour delay in vivo in different mouse models developing hormone-sensive prostate cancers and CRPC

4. Bolis M, Bossi D, Vallerga A, Ceserani V, Cavalli M, Impellizzieri D, Di Rito L, Zoni E, Mosole S, Elia AR, Rinaldi A, Pereira Mestre R, D'Antonio E, Ferrari M, Stoffel F, Jermini F, Gillessen S, Bubendorf L, Schraml P, **Calcinotto A,** Corey E, Moch H, Spahn M, Thalmann G, Kruithof-de Julio M, Rubin MA, Theurillat JP.
Dynamic prostate cancer transcriptome analysis delineates the trajectory to disease progression.
Nat Commun. 2021 Dec 2;12(1):7033.

5. Zorzi M, Guzzinati S, Avossa F, Fedeli U, **Calcinotto A**, Rugge M.
SARS-CoV-2 Infection in Cancer Patients: A Population-Based Study.
Front Oncol. 2021 Oct 11;11:730131.

6. Bonfiglio F, Bruscaggin A, Guidetti F, Terzi di Bergamo L, Faderl M, Spina V, Condoluci A, Bonomini L, Forestieri G, Koch R, Piffaretti D, Pini K, Pirosa MC, Cittone MG, Arribas A, Lucioni M, Ghilardi G, Wu W, Arcaini L, Baptista MJ, Bastidas G, Bea S, Boldorini R, Broccoli A, Buehler MM, Canzonieri V, Cascione L, Ceriani L, Cogliatti S, Corradini P, Derenzini E, Devizzi L, Dietrich S, Elia AR, Facchetti F, Gaidano G, Garcia JF, Gerber B, Ghia P, Gomes da Silva M, Gritti G, Guidetti A, Hitz F, Inghirami G, Ladetto M, Lopez-Guillermo A, Lucchini E, Maiorana A, Marasca R, Matutes E, Meignin V, Merli M, Moccia A, Mollejo M, Montalban C, Novak U, Oscier DG, Passamonti F, Piazza F, Pizzolitto S, Rambaldi A, Sabattini E, Salles G, Santambrogio E, Scarfò L, Stathis A, Stüssi G, Geyer JT, Tapia G, Tarella C, Thieblemont C, Tousseyn T, Tucci A, Vanini G, Visco C, Vitolo U, Walewska R, Zaja F, Zenz T, Zinzani PL, Khiabanian H, **Calcinotto A**, Bertoni F, Bhagat G, Campo E, De Leval L, Dirnhofer S, Pileri SA, Piris MA, Traverse-Glehen A, Tzankov A, Paulli M, Ponzoni M, Mazzucchelli L, Cavalli F, Zucca E, Rossi D.
Genetic and phenotypic attributes of splenic marginal zone lymphoma.
Blood. 2022 Feb 3;139(5):732-747.

7. Pernigoni N*, Zagato E*, **Calcinotto A***, Troiani M, Mestre RP, Calì B, Attanasio G, Troisi J, Minini M, Mosole S, Revandkar A, Pasquini E, Elia AR, Bossi D, Rinaldi A, Rescigno P, Flohr P, Hunt J, Neeb A, Buroni L, Guo C, Welti J, Ferrari M, Grioni M, Gauthier J, Gharaibeh RZ, Palmisano A, Lucchini GM, D'Antonio E, Merler S, Bolis M, Grassi F, Esposito A, Bellone M, Briganti A, Rescigno M, Theurillat JP, Jobin C, Gillessen S, de Bono J, Alimonti A.
Commensal bacteria promote endocrine resistance in prostate cancer through androgen biosynthesis.
Science. 2021 Oct 8;374(6564):216-224.

Key findings: we have identified an unexpected role played by the gut microbiota in CRPC patients. We have found compositional differences in the gut microbiota in prostate cancer patients responding or not to androgen deprivation therapy, and we have identified the microbial signature of CRPC patients.To address the impact of the intestinal microbiota on CRPC progression, we used two mouse models: the TRAMP-C1 allograft and the Ptenpc–/– prostate conditional mouse models. We observed that the elimination of the intestinal microbiota by antibiotic treatment affects prostate tumorigenesis in both mouse models,

selectively in castrated mice. Moreover, we demonstrated that a specific bacteria species acts on the androgen metabolism by directly producing dehydroepiandrosterone (DHEA), thus favouring resistance to androgen deprivation therapy. Our findings highlight hormone metabolism in the microbiome as a potential target to improve treatment responses in prostate cancer. This discovery has inspired the design of the first clinical trial assessing the role of gut microbiota in CRPC patients that recently started in the UK and Switzerland, supported by the Prostate Cancer Foundation (PROMIZE, EudraCT 2021-004559-18).

8. Grioni M, Brevi A, Cattaneo E, Rovida A, Bordini J, Bertilaccio MTS, Ponzoni M, Casoati G, Dellabona P, Ghia P, Bellone M, **Calcinotto A**. *CD4+ T cells sustain aggressive chronic lymphocytic leukemia in Eμ-TCL1 mice through a CD40L-independent mechanism*. **Blood Adv.** 2021 Jul 27;5(14):2817-2828.

9. Montopoli M, Zorzi M, Cocetta V, Prayer-Galetti T, Guzzinati S, Bovo E, Rugge M, **Calcinotto A**. *Clinical outcome of SARS-CoV-2 infection in breast and ovarian cancer patients who underwent antiestrogenic therapy.* **Ann Oncol.** 2021 May;32(5):676-677

10. Alajati A, D'Ambrosio M, Troiani M, Mosole S, Pellegrini L, Chen J, Revandkar A, Bolis M, Theurillat JP, Guccini I, Losa M, **Calcinotto A**, De Bernardis G, Pasquini E, D'Antuono R, Sharp A, Figueiredo I, Nava Rodrigues D, Welti J, Gil V, Yuan W, Vlajnic T, Bubendorf L, Chiorino G, Gnetti L, Torrano V, Carracedo A, Camplese L, Hirabayashi S, Canato E, Pasut G, Montopoli M, Rüschoff JH, Wild P, Moch H, De Bono J, Alimonti A. *CDCP1 overexpression drives prostate cancer progression and can be targeted in vivo*. **J Clin Invest**. 2020 May 1;130(5):2435-2450.

11. Di Mitri D*, Mirenda M*, Vasilevska J*, **Calcinotto A**, Delaleu N, Revandkar A, Gil V, Boysen G, Losa M, Mosole S, Pasquini E, D'Antuono R, Masetti M, Zagato E, Chiorino G, Ostano P, Rinaldi A, Gnetti L, Graupera M, Martins Figueiredo Fonseca AR, Pereira Mestre R, Waugh D, Barry S, De Bono J, Alimonti A. *Re- education of Tumor-Associated Macrophages by CXCR2 Blockade Drives Senescence and Tumor Inhibition in Advanced Prostate Cancer*. **Cell Rep.** 2019 Aug 20;28(8):2156-2168.e5.

12. **Calcinotto A**, Brevi A, Chesi M, Ferrarese R, Garcia Perez L, Grioni M, Kumar S, Garbitt VM, Sharik ME, Henderson KJ, Tonon G, Tomura M, Miwa Y, Esplugues E, Flavell RA, Huber S, Canducci F, Rajkumar VS, Bergsagel PL, Bellone M. *Microbiota-driven interleukin-17-producing cells and eosinophils synergize to accelerate multiple myeloma progression.* **Nat Commun.** 2018 Dec 3;9(1):4832.

    Key findings: We provided evidence that a specific bacterium in the gut microbiota promotes the differentiation and migration of pro-tumorigenic Th17 cells, which colonize the gut and migrate to the bone marrow, favouring the emergence of multiple myeloma. The Th17 cells are a T-cell subset that produces IL17. Lack of IL17 or disturbance of the microbiome delayed multiple myeloma appearance in the Vk*MYC mouse model of multiple myeloma. Similarly, patients with high levels of IL17 in the plasma progress faster from an asymptomatic disease called smouldering multiple myeloma to frank multiple myeloma. Mechanistically, IL17 produced by Th17 cells in the tumour microenvironment activates eosinophils to produce IL6. Both these cytokines directly sustain malignant plasma cells inducing STAT3 phosphorylation. Treatment of Vk*MYC mice with antibodies blocking IL-17, IL-17RA and IL-5 reduced bone marrow accumulation of Th17 cells and eosinophils and delayed disease progression.

13. **Calcinotto A,** Spataro C, Zagato E, Di Mitri D, Gil V, Crespo M, De Bernardis G, Losa M, Mirenda M, Pasquini E, Rinaldi A, Sumanasuriya S, Lambros MB, Neeb A, Lucianò R, Bravi CA, Nava-Rodrigues D, Dolling D, Prayer-Galetti T, Ferreira A, Briganti A, Esposito A,

Barry S, Yuan W, Sharp A, de Bono J, Alimonti A. *IL-23 secreted by myeloid cells drives castration-resistant prostate cancer*. **Nature.** 2018 Jul;559(7714):363-369.

Key findings: Prostate cancer patients in the advanced state frequently show resistance to androgen deprivation therapy, a condition known as castration-resistant prostate cancer (CRPC). We demonstrated that a subset of neutrophils defined tumour-infiltrating polymorphonucleated myeloid derived suppressor cells (PMN-MDSCs) can promote androgen insensitivity in prostate tumours by acting in a non-cell-autonomous manner and that treatments that block IL23 oppose PMN-MDSCs-mediated androgen insensitivity synergize with the standard of care androgen deprivation therapy. A multi-centre trial on CRPC patients financed by a Big Pharma is currently ongoing (ACTIon: NCT04458311, EudraCT 2019-003485-40). This represents one of the most exciting developments in the advancement of CRPC therapy in recent years.

14. Cortesi F, Delfanti G, Grilli A, **Calcinotto A**, Gorini F, Pucci F, Lucianò R, Grioni M, Recchia A, Benigni F, Briganti A, Salonia A, De Palma M, Bicciato S, Doglioni C, Bellone M, Casorati G, Dellabona P. *Bimodal CD40/Fas-Dependent Crosstalk between iNKT Cells and Tumor-Associated Macrophages Impairs Prostate Cancer Progression*. **Cell Rep**. 2018 Mar 13;22(11):3006-3020.

15. Chesi M, Mirza NN, Garbitt VM, Sharik ME, Dueck AC, Asmann YW, Akhmetzyanova I, Kosiorek HE, **Calcinotto A**, Riggs DL, Keane N, Ahmann GJ, Morrison KM, Fonseca R, Lacy MQ, Dingli D, Kumar SK, Ailawadhi S, Dispenzieri A, Buadi F, Gertz MA, Reeder CB, Lin Y, Chanan-Khan AA, Stewart AK, Fooksman D, Bergsagel PL. *IAP antagonists induce anti-tumor immunity in multiple myeloma.* **Nat Med**. 2016 Dec;22(12):1411-1420.

16. Bianco M, Gasparri AM, Colombo B, Curnis F, Girlanda S, Ponzoni M, Bertilaccio MT, **Calcinotto A**, Sacchi A, Ferrero E, Ferrarini M, Chesi M, Bergsagel PL, Bellone M, Tonon G, Ciceri F, Marcatti M, Caligaris-Cappio F, Corti A. *Chromogranin A Is Preferentially Cleaved into Proangiogenic Peptides in the Bone Marrow of Multiple Myeloma Patients*. **Cancer Res**. 2016 Apr 1;76(7):1781-91.

17. Moschetta M, Mishima Y, Kawano Y, Manier S, Paiva B, Palomera L, Aljawai Y, **Calcinotto A**, Unitt C, Sahin I, Sacco A, Glavey S, Shi J, Reagan MR, Prosper F, Bellone M, Chesi M, Bergsagel LP, Vacca A, Roccaro AM, Ghobrial IM. *Targeting vasculogenesis to prevent progression in multiple myeloma*. **Leukemia**. 2016 May;30(5):1103-15.

18. **Calcinotto A**, Ponzoni M, Ria R, Grioni M, Cattaneo E, Villa I, Sabrina Bertilaccio MT, Chesi M, Rubinacci A, Tonon G, Bergsagel PL, Vacca A, Bellone M. *Modifications of the mouse bone marrow microenvironment favor angiogenesis and correlate with disease progression from asymptomatic to symptomatic multiple myeloma*. **Oncoimmunology**. 2015 May 7;4(6):e1008850.

19. Jachetti E, Caputo S, Mazzoleni S, Brambillasca CS, Parigi SM, Grioni M, Piras IS, Restuccia U, **Calcinotto A**, Freschi M, Bachi A, Galli R, Bellone M. *Tenascin-C Protects Cancer Stem-like Cells from Immune Surveillance by Arresting T-cell Activation*. **Cancer Res**. 2015 May 15;75(10):2095-108.

20. Jachetti E, Mazzoleni S, Grioni M, Ricupito A, Brambillasca C, Generoso L, **Calcinotto A**, Freschi M, Mondino A, Galli R, Bellone M. *Prostate cancer stem cells are targets of both innate and adaptive immunity and elicit tumor-specific immune responses*. **Oncoimmunology**. 2013 May 1;2(5):e24520.

21. Ricupito A, Grioni M, **Calcinotto A**, Hess Michelini R, Longhi R, Mondino A, Bellone M. *Booster vaccinations against cancer are critical in prophylactic but detrimental in therapeutic settings*. **Cancer Res**. 2013 Jun 15;73(12):3545-54.

22. **Calcinotto A**, Filipazzi P, Grioni M, Iero M, De Milito A, Ricupito A, Cova A, Canese R, Jachetti E, Rossetti M, Huber V, Parmiani G, Generoso L, Santinami M, Borghi M, Fais S, Bellone M, Rivoltini L. *Modulation of microenvironment acidity reverses anergy in human and murine tumor-infiltrating T lymphocytes*. **Cancer Res.** 2012 Jun 1;72(11):2746-56.

23. **Calcinotto A**, Grioni M, Jachetti E, Curnis F, Mondino A, Parmiani G, Corti A, Bellone M. *Targeting TNF-α to neoangiogenic vessels enhances lymphocyte infiltration in tumors and increases the therapeutic potential of immunotherapy*. **J Immunol.** 2012 Mar 15;188(6):2687-94.

24. Bellone M, Ceccon M, Grioni M, Jachetti E, **Calcinotto A**, Napolitano A, Freschi M, Casorati G, Dellabona P. *iNKT cells control mouse spontaneous carcinoma independently of tumor-specific cytotoxic T cells*. **PLoS One**. 2010 Jan 13;5(1):e8646.

Review articles

25. Mukherjee S, Elia AR, **Calcinotto A**.
Role of myeloid-derived suppressor cells in hormone-dependent cancers.
Swiss Med Wkly. 2021 Mar 16;151:w20483.

26. **Calcinotto A**, Kohli J, Zagato E, Pellegrini L, Demaria M, Alimonti A.
Cellular Senescence: Aging, Cancer, and Injury.
Physiol Rev. 2019 Apr 1;99(2):1047-1078.

27. **Calcinotto A**, Alimonti A.
Aging tumour cells to cure cancer: "pro- senescence" therapy for cancer.
Swiss Med Wkly. 2017 Jan 17;147:w14367.

28. Maio M, Bertocci E, Fazio C, Chiarucci C, Cutaia O, Scala E, Giacobini G, Lofiego MF, Fonsatti E, Maccalli C, Nicolay HJ, Parmiani G; **Calcinotto A**, NIBIT.
"*Cancer Bio- Immunotherapy in Siena*": Thirteenth Meeting of the Network Italiano per la Bioterapia dei Tumori (NIBIT), Siena, Italy, October 8-10, 2015.
Cancer Immunol Immunother. 2016 Nov;65(11):1423-1431.

29. Ricupito A, Grioni M, **Calcinotto A,** Bellone M.
Boosting anticancer vaccines: Too much of a good thing?
Oncoimmunology. 2013 Jul 1;2(7):e25032.

30. Bellone M, **Calcinotto A.**
Ways to enhance lymphocyte trafficking into tumors and fitness of tumor infiltrating lymphocytes. **Front Oncol.** 2013 Sep 11;3:231.

31. Bellone M, **Calcinotto A**, Filipazzi P, De Milito A, Fais S, Rivoltini L.
The acidity of the tumor microenvironment is a mechanism of immune escape that can be overcome by proton pump inhibitors.
Oncoimmunology. 2013 Jan 1;2(1):e22058.

32. Bellone M, **Calcinotto A**, Corti A.
Won't you come on in? How to favor lymphocyte infiltration in tumors.
Oncoimmunology. 2012 Sep 1;1(6):986-988.

33. Maio M, Nicolay HJ, Ascierto PA, Belardelli F, Camerini R, Colombo MP, Queirolo P, Ridolfi R, Russo V, Fonsatti E; **Calcinotto A**, NIBIT; Parmiani G.
Eighth annual meeting of the Italian network for tumor biotherapy (NIBIT).
Cancer Immunol Immunother. 2011 Jun;60(6):901-7.

Patents

- Inventor,
  Title: *“Commensal bacteria promote endocrine-resistance in prostate cancer via androgen biosynthesis”*
  Application number: EP 102021000021974
  Filed by IOR
- Inventor,
  Title: *“Enhancement of Prostate Cancer Treatment”*
  Application number: US20200095314A1
  Filed by IOR
- Inventor,
  Title: *“Bacterial strains for medical uses”*
  Application number: EP 18 209 623.0
  Filed by San Raffaele Institute