

Curriculum vitae SABRINA ARENA

Personal details

Born in Savigliano (CN, Italy), 24/3/1978

Nationality: Italian

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ORCID ID: 0000-0002-1318-2494; Scopus ID: 8930746700; Researcher ID: H-4985-2012

Educations

-2018: National scientific qualification as Associate Professor in SSD BIO/17, sector 5/H2 (Histology, from 24/09/2018)

-2010–2015 Specialization (Medical Residency) in Clinical Pathology, University of Torino. 70/70 cum laude. Thesis title: "New molecular determinants of acquired resistance to anti-EGFR therapy in colorectal cancer"

-1/11/2002–31/10/2006 PhD course in Cell Sciences and Technologies (cycle XVIII), Candiolo Cancer Institute, FPO-IRCCS and University of Torino. Thesis title: "Functional analysis of oncogenic alleles in genetically defined cellular models".

-11/2002–7/2003 Exchange Visitor during the PhD course at "The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University, Baltimore (USA)". Supervisor: Prof. Ben Ho Park.

-1997–2002 Graduation in Medical Biotechnology at University of Torino Medical School. 110/110 cum laude, special honours for best curriculum studiorum of the course. Supervisor:

Professional experiences and current position

23/03/2022 – present GROUP LEADER, Candiolo Cancer Institute, FPO-IRCCS, Laboratory of Translational Cancer Genetics

28/12/2021–present Associate Professor, Dept of Oncology, University of Torino

28/12/2018–27/12/2021 Assistant Professor (RTDB), Dept of Oncology, University of Torino

2018-2022: AIRC MFAG Junior PI at Candiolo Cancer Institute, FPO-IRCCS

1/3/2018–27/12/2018 Research Fellowship, University of Torino. "MoTriColor: Molecularly guided trials with specific treatment strategies in patients with advanced newly molecular defined subtypes of colorectal cancer (WP7 - project GA 635342 MoTriColor)". <http://www.motricolor.eu/>

1/1/2016–28/02/2018 Research Fellowship, University of Torino and Candiolo Cancer Institute, FPO-IRCCS. "MoTriColor: Molecularly guided trials with specific treatment strategies in patients with advanced newly molecular defined subtypes of colorectal cancer (WP7)".

1/7/2013–31/12/2015 Post Doc, Fondazione del Piemonte per l'Oncologia, Candiolo (Italy), "Analysis of resistance mechanisms in anti-EGFR therapy in colorectal cancer".

2010–2015 Specialization (Medical Residency) in Clinical Pathology, University of Torino. 15/11/2011–

30/6/2013 Post Doc, Fondazione del Piemonte per l'Oncologia, Candiolo Cancer Institute "Study of the molecular mechanisms involved in cetuximab resistance in colorectal cancer therapy" 1/11/2010–31/10/2011

Post Doc, Fondazione del Piemonte per l'Oncologia, Candiolo Cancer Institute "Study of the molecular mechanisms involved in primary and secondary resistance in anti-EGFR therapy in colorectal cancer"

1/11/2008–31/10/2010 Research Fellowship, University of Torino. "Construction and functional characterization of tumor progression cellular models"

1/11/2006–31/10/2008 Research Fellowship, University of Torino. "Identification and functional validation of mutations present in pancreatic "kinoma" and "phosphatoma"

11/2002–7/2003 Exchange Visitor at "The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University, Baltimore (USA)". Supervisor: Prof. Ben Ho Park.

2002–2006 PhD course in Cell Sciences and Technologies, University of Torino - Candiolo Cancer Institute, FPO-IRCCS

PhD Thesis defense: 07/02/2007

Participation to Directive Boards of Scientific Societies and/or Institutions:

From 2019: "Collegio dei docenti di istologia ed embriologia" member

Honors

From 2020: "Biotecnologi Italiani" member

From 2019: "Collegio dei docenti di istologia ed embriologia" member

2013-2019: ANBI President - Piedmont region

2015: WICR (Women In Cancer Research)-AACR fellowship to attend the Fourth AACR International Conference on Frontiers in Basic Cancer Research, October 23 - 26, 2015, Philadelphia (USA)
2011: FEBS fellowship to join FEBS Advanced Lecture Course on Translational Cancer Research, Algarve (Portugal), Sept 27- Oct 4, 2011.
2010: Scholar-in-Training Award AACR Conference on Translational Cancer Medicine 2010, July 11- 14, 2010, San Francisco, California, USA.
2009: "Amelia Earhart" Award, women in the Cuneo area working in scientific research- Zonta Club
From 2009: SIC (Italian Society of Cancerology)
From 2009: EACR (European Association for Cancer Research) ordinary member
From 2008: AACR (American Association for Cancer Research) associate member
2008: Regional Grant for "Piemonte-Ricerca Sanitaria Finalizzata 2008bis"
2006-2010, 2016-2018: Italian Research fellowships ("assegni di ricerca")
2002-2006: Doctoral Fellowship
2003: BEST THESIS AWARD in Medical Biotechnology for the year 2002 at University of Torino Medical School

Teaching activity:

Teaching activity (tenure):

2019-present: Lecturer in Histology for the integrated course of Physiology, Anatomy and Histology in the 3-year Laboratory Technician course- University of Turin Medical School
2020-present: Lecturer in Physiopathological mechanisms of tissue renewal and repair at Medical Biotechnology course (School of Medicine), University of Torino
2021-present: Lecturer in Biological and molecular basis of cancer course (School of Medicine), University of Torino
2021-present: Genetics in Oncology course for students attending medical specialization in Medical genetics
2019-2021: Lecturer in Histology at School of Medicine, University of Torino

Teaching activity (complementary):

2003-2019 in Histology for the integrated course of Anatomy and Histology in the 3-years medical courses held in University of Turin Medical School (Laboratory Technician and Nursing).
2008-2020 Complementary teaching activity in the course of Functional Histology and the Genetic Basis of cancer in the Molecular Biotechnology School at the University of Turin.

Tutor for Lab work and thesis writing for undergraduate and PhD students attending the Biotechnology and Medicine Schools at the University of Torino.

Research main topics

https://www.oncology.unito.it/do/docenti.pl/Show?_id=sarena#tab-ricerca

Main projects as PI:

2023: AIRC-BRIDGE 2023 (PI -1 year) Project title: "Strategies to overcome acquired resistance to targeted therapies in colorectal cancer"
2023: PI Project Leader for the Veronesi fellowship assigned to dr Alena Opattova. Project title: "Targeting DNA repair vulnerabilities to overcome resistance in metastatic prostate cancer" at Candiolo Cancer Institute, FPO-IRCCS
2020/21/22: Ricerca Locale 2020/2021/2022 grant (University of Torino)
2020: FPRC 5xmille 2017 Ministero Salute PTCRC-Intra 2020 (REGENERATION-YOUNG Investigator Grant 2020 project)-3 years
2017: AIRC-MFAG 2017 (PI -5 years). Project title: "Strategies to overcome acquired resistance to targeted therapies in colorectal cancer"
2016: INTRACOLOR Grant (TRANSCAN-2 project, co-funded by the European Commission/DG Research and Innovation) - Project Partner Leader- 3 years

Bibliometry (2004-present) (www.scopus.com)

Total N. of Publications: 49

H-Index: 27 (Scopus)

N. of citations: 4675 (Scopus)

10 best publications

1. Durinikova E, Reilly NM, Buzo K, Mariella E, Chilà R, Lorenzato A, Dias JML, Grasso G, Pisati F, Lamba S, Corti G, Degasperi A, Cancelliere C, Mauri G, Andrei P, Linnebacher M, Marsoni S, Siena S, Sartore Bianchi A, Nik-Zainal S, Di Nicolantonio F, Bardelli* A and **Arena* S**. Targeting the DNA Damage Response pathways and Replication Stress in Colorectal Cancer. *Clin Cancer Res*. 2022 Sep 1;28(17):3874-3889. doi: 10.1158/1078-0432.CCR-22-0875. ***coLast and coCorresponding authors**
2. Mauri G*, Durinikova E*, Amatu A, Tosi F, Cassingena A, Buzo F, Rizzetto F, Arcella A, Aquilano MC, Marsoni S, Bonoldi E, Salvatore Siena, Alberto Bardelli, Andrea Sartore-Bianchi# and **Arena S#**. Empowering clinical decision-making in oligometastatic colorectal cancer: the potential role of drug screening of patient-derived organoids. *JCO Precis Oncol*. 2021 Jul; 5: PO.21.00143 ***co-First authors; #co-Last and corresponding author**
3. Durinikova E, Buzo K and **Arena S***. Preclinical models as patients' avatars for precision medicine in colorectal cancer: past and future challenges. *J Exp Clin Cancer Res* 40, 185 (2021). <https://doi.org/10.1186/s13046-021-01981-z> ***Last and Corresponding author**
4. Picco G, Cattaneo C, Van Vliet EJ, Crisafulli G, Rospo G, Consonni S, Vieira S F, Sánchez Rodríguez I, Cancelliere C, Banerjee R, Schipper L, Oddo D, Dijkstra K, Cinatl J, Michaelis M, Yang F, Cell Model Network UK Group, Di Nicolantonio F, Sartore-Bianchi A, Siena S, **Arena S**, Voest* E, Bardelli* A, and Garnett* MJ. Werner helicase is a synthetic-lethal vulnerability in Mismatch Repair–Deficient Colorectal Cancer Refractory to Targeted Therapies, Chemotherapy and Immunotherapy. *Cancer Discov*. 2021 Apr 9:candisc.1508.2020. (***co-Last authors**)
5. Mauri G, **Arena S#**, Siena S, Bardelli A, Sartore-Bianchi A. The DNA damage response pathway as a land of therapeutic opportunities for colorectal cancer. *Ann Oncol*. 2020 Sep;31(9):1135-1147. doi: 10.1016/j.annonc.2020.05.027. **# Co-First and co-Corresponding author**
6. Lorenzato A, Magri A, Matafora V, Audrito V, Arcella P, Lazzari L, Montone M, Lamba S, Deaglio S, Siena S, Bertotti A, Trusolino L, Bachi A, Di Nicolantonio F, Bardelli A and **Arena S***. Vitamin C Restricts the Emergence of Acquired Resistance to EGFR-Targeted Therapies in Colorectal Cancer. *Cancers (Basel)*. 2020 Mar 14;12(3):685. doi: 10.3390/cancers12030685. PMID: 32183295; PMCID: PMC7140052. ***Last and Corresponding author**
7. **Arena S**, Corti G, Durinikova E, Montone M, Reilly NM, Russo M, Lorenzato A, Arcella P, Lazzari L, Rospo G, Pagani M, Cancelliere C, Negrino C, Isella I, Bartolini A, Cassingena A, Amatu A, Mauri G, Sartore-Bianchi A, Mittica G, Medico E, Marsoni S, Linnebacher M, Abrignani S, Siena S, Di Nicolantonio F, and Bardelli A. A Subset of Colorectal Cancers with Cross-Sensitivity to Olaparib and Oxaliplatin. *Clin Cancer Res*. 2020 Mar 15;26(6):1372-1384. doi: 10.1158/1078-0432.CCR-19-2409. Epub 2019 Dec 12. PMID: 31831554.
8. Russo M, Crisafulli G, Sogari A, Reilly NM, **Arena S**, Lamba S, Bartolini A, Amodio V, Magri A, Novara L, Sarotto I, Nagel ZD, Piett CG, Amatu A, Sartore-Bianchi A, Siena S, Bertotti A, Trusolino L, Corigliano M, Gherardi M, Lagomarsino MC, Di Nicolantonio F, Bardelli A. Adaptive mutability of colorectal cancers in response to targeted therapies. *Science*. 2019 Dec 20;366(6472):1473-1480. doi: 10.1126/science.aav4474. Epub 2019 Nov 7. PMID: 31699882.
9. Lazzari L, Corti G, Picco G, Isella C, Montone M, Arcella P, Durinikova E, Zanella ER, Novara L, Barbosa F, Cassingena A, Cancelliere C, Medico E, Sartore-Bianchi A, Siena S, Garnett MJ, Bertotti A, Trusolino L, Di Nicolantonio F, Linnebacher M, Bardelli A and **Arena S***. Patient-derived xenografts and matched cell lines identify pharmacogenomic vulnerabilities in colorectal cancer. *Clin Cancer Res*. 2019 Oct 15;25(20):6243-6259. doi: 10.1158/1078-0432.CCR-18-3440. Epub 2019 Aug 2. PMID: 31375513. ***co-Last and Corresponding author**
10. **Arena S#**, Siravegna G, Mussolin B, Kearns JD, Wolf BB, Misale S, Lazzari L, Bertotti A, Trusolino L, Adjei AA, Montagut C, Di Nicolantonio F, Nering R, Bardelli A. MM-151 overcomes acquired resistance to cetuximab and panitumumab in colorectal cancers harboring EGFR extracellular domain mutations. *Sci Transl Med*. 2016 Feb 3;8(324):324ra14. doi:10.1126/scitranslmed.aad5640. PMID: 26843189. **# First and co-Corresponding author**

15 more relevant publication in the last 5 yrs (2018-2022)

1. Durinikova E, Reilly NM, Buzo K, Mariella E, Chilà R, Lorenzato A, Dias JML, Grasso G, Pisati F, Lamba S, Corti G, Degasperi A, Cancelliere C, Mauri G, Andrei P, Linnebacher M, Marsoni S, Siena S, Sartore Bianchi A, Nik-Zainal S, Di Nicolantonio F, Bardelli* A and **Arena* S**. Targeting the DNA Damage Response pathways and Replication Stress in Colorectal Cancer. *Clin Cancer Res*. 2022 Sep 1;28(17):3874-3889. doi: 10.1158/1078-0432.CCR-22-0875. ***coLast and coCorresponding authors**
2. Mauri G*, Durinikova E*, Amatu A, Tosi F, Cassingena A, Buzo F, Rizzetto F, Arcella A, Aquilano MC, Marsoni S, Bonoldi E, Salvatore Siena, Alberto Bardelli, Andrea Sartore-Bianchi# and **Arena S#**. Empowering clinical decision-making in oligometastatic colorectal cancer: the potential role of drug screening of patient-derived organoids. *JCO Precis Oncol*. 2021 Jul; 5: PO.21.00143 ***co-First authors; #co-Last and corresponding author**
3. Durinikova E, Buzo K and **Arena S***. Preclinical models as patients' avatars for precision medicine in colorectal cancer: past and future challenges. *J Exp Clin Cancer Res* 40, 185 (2021). <https://doi.org/10.1186/s13046-021-01981-z> ***Last and Corresponding author**
4. Picco G, Cattaneo C, Van Vliet EJ, Crisafulli G, Rospo G, Consonni S, Vieira S F, Sánchez Rodríguez I, Cancelliere C, Banerjee R, Schipper L, Oddo D, Dijkstra K, Cinatl J, Michaelis M, Yang F, Cell Model Network UK Group, Di Nicolantonio F, Sartore-Bianchi A, Siena S, **Arena S**, Voest* E, Bardelli* A, and Garnett* MJ. Werner helicase is a synthetic-lethal vulnerability in Mismatch Repair–Deficient Colorectal Cancer Refractory to Targeted Therapies, Chemotherapy and Immunotherapy. *Cancer Discov*. 2021 Apr 9:candisc.1508.2020. (***co-Last authors**)

5. Mauri G, Gori V, Bonazzina E, Amatu A, Tosi F, Bencardino K, Ruggieri L, Patelli G, **Arena S**, Bardelli A, Siena S, Sartore-Bianchi A. Oxaliplatin retreatment in metastatic colorectal cancer: Systematic review and future research opportunities. *Cancer Treat Rev.* 2020 Dec;91:102112. doi: 10.1016/j.ctrv.2020.102112. Epub 2020 Oct 9. PMID: 33091698.
6. Cocco E, Lee JE, Kannan S, Schram AM, Won HH, Shifman S, Kulick A, Baldino L, Toska E, Arruabarrena-Aristorena A, Kittane S, Wu F, Cai Y, **Arena S**, Mussolin B, Kannan R, Vasan N, Gorelick AN, Berger MF, Novoplansky O, Jagadeeshan S, Liao Y, Rix U, Misale S, Taylor BS, Bardelli A, Hechtman JF, Hyman DM, Elkabets M, de Stanchina E, Verma CS, Ventura A, Drilon A, Scaltriti M. TRK xDFG Mutations Trigger a Sensitivity Switch from Type I to II Kinase Inhibitors. *Cancer Discov.* 2021 Jan;11(1):126-141. doi: 10.1158/2159-8290.CD-20-0571. Epub 2020 Oct 1. PMID: 33004339; PMCID: PMC8012405.
7. Amodio V, Yaeger R, Arcella P, Cancelliere C, Lamba S, Lorenzato A, **Arena S**, Montone M, Mussolin B, Bian Y, Whaley A, Pinnelli M, Murciano-Goroff YR, Vakiani E, Valeri N, Liao WL, Bhalkikar A, Thyparambil S, Zhao HY, de Stanchina E, Marsoni S, Siena S, Bertotti A, Trusolino L, Li BT, Rosen N, Di Nicolantonio F, Bardelli A, Misale S. EGFR Blockade Reverts Resistance to KRASG12C Inhibition in Colorectal Cancer. *Cancer Discov.* 2020 Aug;10(8):1129-1139. doi: 10.1158/2159-8290.CD-20-0187.
8. Mauri G, **Arena S**[#], Siena S, Bardelli A, Sartore-Bianchi A. The DNA damage response pathway as a land of therapeutic opportunities for colorectal cancer. *Ann Oncol.* 2020 Sep;31(9):1135-1147. doi: 10.1016/j.annonc.2020.05.027. **# Co-First and co-Corresponding author**
9. Lorenzato A, Magrì A, Matafora V, Audrito V, Arcella P, Lazzari L, Montone M, Lamba S, Deaglio S, Siena S, Bertotti A, Trusolino L, Bachi A, Di Nicolantonio F, Bardelli A and **Arena S**^{*}. Vitamin C Restricts the Emergence of Acquired Resistance to EGFR-Targeted Therapies in Colorectal Cancer. *Cancers (Basel).* 2020 Mar 14;12(3):685. doi: 10.3390/cancers12030685. PMID: 32183295; PMCID: PMC7140052. ***Last and Corresponding author**
10. Magrì A, Germano G, Lorenzato A, Lamba S, Chilà R, Montone M, Amodio V, Ceruti T, Sassi F, **Arena S**, Abrignani S, D'Incalci M, Zucchetti M, Di Nicolantonio F and Bardelli A. High-dose vitamin C enhances cancer immunotherapy. *Sci Transl Med.* 2020 Feb 26;12(532):eaay8707. doi: 10.1126/scitranslmed.aay8707. PMID: 32102933.
11. **Arena S**, Corti G, Durinikova E, Montone M, Reilly NM, Russo M, Lorenzato A, Arcella P, Lazzari L, Rospo G, Pagani M, Cancelliere C, Negrino C, Isella I, Bartolini A, Cassingena A, Amatu A, Mauri G, Sartore-Bianchi A, Mittica G, Medico E, Marsoni S, Linnebacher M, Abrignani S, Siena S, Di Nicolantonio F, and Bardelli A. A Subset of Colorectal Cancers with Cross-Sensitivity to Olaparib and Oxaliplatin. *Clin Cancer Res.* 2020 Mar 15;26(6):1372-1384. doi: 10.1158/1078-0432.CCR-19-2409. Epub 2019 Dec 12. PMID: 31831554.
12. Russo M, Crisafulli G, Sogari A, Reilly NM, **Arena S**, Lamba S, Bartolini A, Amodio V, Magrì A, Novara L, Sarotto I, Nagel ZD, Piett CG, Amatu A, Sartore-Bianchi A, Siena S, Bertotti A, Trusolino L, Corigliano M, Gherardi M, Lagomarsino MC, Di Nicolantonio F, Bardelli A. Adaptive mutability of colorectal cancers in response to targeted therapies. *Science.* 2019 Dec 20;366(6472):1473-1480. doi: 10.1126/science.aav4474. Epub 2019 Nov 7. PMID: 31699882.
13. Lazzari L, Corti G, Picco G, Isella C, Montone M, Arcella P, Durinikova E, Zanella ER, Novara L, Barbosa F, Cassingena A, Cancelliere C, Medico E, Sartore-Bianchi A, Siena S, Garnett MJ, Bertotti A, Trusolino L, Di Nicolantonio F, Linnebacher M, Bardelli A and **Arena S**^{*}. Patient-derived xenografts and matched cell lines identify pharmacogenomic vulnerabilities in colorectal cancer. *Clin Cancer Res.* 2019 Oct 15;25(20):6243-6259. doi: 10.1158/1078-0432.CCR-18-3440. Epub 2019 Aug 2. PMID: 31375513. ***co-Last and Corresponding author**
14. Russo M, Lamba S, Lorenzato A, Sogari A, Corti G, Rospo G, Mussolin B, Montone M, Lazzari L, **Arena S**, Oddo D, Linnebacher M, Sartore-Bianchi A, Pietrantonio F, Siena S, Di Nicolantonio F, Bardelli A. Reliance upon ancestral mutations is maintained in colorectal cancers that heterogeneously evolve during targeted therapies. *Nat Commun.* 2018 Jun 12;9(1):2287
15. **Arena S**, Salati M, Sorgentoni G, Barbisan F, Orciani M. Characterization of tumor-derived mesenchymal stem cells potentially differentiating into cancer-associated fibroblasts in lung cancer. *Clin Transl Oncol.* 2018 Dec;20(12):1582-1591. doi: 10.1007/s12094-018-1894-4. Epub 2018 May 23. PMID: 29796998.

Torino, March 10th, 2023
Sabrina Arena