



Sebastian Amigorena Director of Research, Group Leader

TEAM AMIGORENA

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Sebastian Amigorena is “**Directeur de Recherche Classe Exceptionnelle**” at **CNRS**, Director of the “**Center of Immunotherapy for cancers**” and the “**Immune responses and cancer**” **Team** at **Institut Curie** (Paris, France), included in the **Immunology Department “Immunity and Cancer”** that he created in 2003 and directed until March 2021.

Dr. Amigorena obtained a **PhD in Biochemistry in 1990**, and joined CNRS before doing a post-doctoral training at Yale School of Medicine (1992-1994). He returned to France in 1995 and started his team at Institut Curie (Paris, France).

Dr. Amigorena made groundbreaking contributions to **immunology and cell biology**, at every stage of his career. As a PhD student, he discovered ITIMs, a family of short amino acid motifs present in the cytosolic tails of numerous inhibitory immunoreceptors that play critical roles in the control of autoimmunity. As a postdoc, he identified specialized intracellular compartments, related to endosomes, where peptides are loaded on MHC molecules. As a group leader, he pioneered the field of **antigen cross presentation**, establishing the fundamental functional properties of phagosomes in mouse and human dendritic cells and showing how these specializations contribute to the initiation of adaptive immune responses by dendritic cells. Amigorena’s group also showed that regulatory T cells inhibit low avidity CD8⁺ T cells selectively, thus preventing autoimmune reactivity and optimizing the efficacy of effector and memory immune responses against non-self antigens. His findings modified our understanding of antigen presentation and **T cell priming by dendritic cells**, with applications in the fields of **cancer immunotherapy and vaccination**. Dr. Amigorena published over 200 original articles, including, as a co-first or co-last author, in Nature (4x), Science (3x), Cell (2x), Immunity (6x), Nature Immunology (4x), Nature Cell Biology (2x), and Journal of Experimental Medicine (6x).

Dr. Amigorena is a **member of the French “Académie des Sciences”** and an elected EMBO member since 2005. He received numerous national and international prizes and awards, including the **Silver Medal from CNRS** (2004), the Research award from Fondation Bettencourt (2005), the Griffuel Prize from ARC (2007), the Alt Award from CRI, and twice the prestigious senior **European Research Council (ERC) award** (2008 and 2014), the award Claude Bernard from Paris City (2017). He became **Knight of the French “Légion d’honneur”** (2018). He co-directs the **Labex** (Investissements d’Avenir) **DC-BIOL**, awarded in 2012. He serves on numerous Editorial Boards and is a regular referee for major international journals (including as a reviewing editor in Science, since 2012). He mentored over 30 post docs and students. His international leadership is reflected by invitations to write reviews in the most influential journals

and to speak, including as a Keynote Speaker, at over 100 international conferences.

Key publications

Year of publication 2020

Marianne Burbage, Sebastian Amigorena (2020 Aug 14)

A dendritic cell multitasks to tackle cancer.

Nature : 533-534 : [DOI : 10.1038/d41586-020-02339-9](https://doi.org/10.1038/d41586-020-02339-9)

Nicolas Gonzalo Núñez, Jimena Tosello Boari, Rodrigo Nalio Ramos, Wilfrid Richer, Nicolas Cagnard, Cyrill Dimitri Anderfuhren, Leticia Laura Niborski, Jeremy Bigot, Didier Meseure, Philippe De La Rochere, Maud Milder, Sophie Viel, Delphine Loirat, Louis Pérol, Anne Vincent-Salomon, Xavier Sastre-Garau, Becher Burkhard, Christine Sedlik, Olivier Lantz, Sebastian Amigorena, Eliane Piaggio (2020 Jul 1)

Tumor invasion in draining lymph nodes is associated with Treg accumulation in breast cancer patients.

Nature communications : 3272 : [DOI : 10.1038/s41467-020-17046-2](https://doi.org/10.1038/s41467-020-17046-2)

Year of publication 2019

Kondratova M1, Czerwinska U1,2, Sompairac N1,2, Amigorena SD3, Soumelis V3, Barillot E1, Zinovyev A1, Kuperstein I4. (2019 Oct 22)

A multiscale signalling network map of innate immune response in cancer reveals cell heterogeneity signatures.

Nature communications : 10 : Nat Commun. 2019 Oct 22;10(1):4808. doi: 10.1038/s41467-019-12270-x. : 4808 : [DOI : 10.1038/s41467-019-12270-x](https://doi.org/10.1038/s41467-019-12270-x)

Year of publication 2017

Goudot C1, Coillard A1, Villani AC2, Gueguen P1, Cros A1, Sarkizova S3, Tang-Huau TL4, Bohec M5, Baulande S5, Hacohen N2, Amigorena S1, Segura E6. (2019 Sep 19)

Aryl Hydrocarbon Receptor Controls Monocyte Differentiation into Dendritic Cells versus Macrophages.

Immunity : 47 : Immunity. 2017 Sep 19;47(3):582-596.e6. doi: 10.1016/j.immuni.2017.08.016. : 582,596 : [DOI : 10.1016/j.immuni.2017.08.016](https://doi.org/10.1016/j.immuni.2017.08.016)

Year of publication 2019

Mélanie Durand, Thomas Walter, Tiphène Pirnay, Thomas Naessens, Paul Gueguen, Christel

Goudot, Sonia Lameiras, Qing Chang, Nafiseh Talaei, Olga Ornatsky, Tatiana Vassilevskaia, Sylvain Baulande, Sebastian Amigorena, Elodie Segura (2019 May 11)

Human lymphoid organ cDC2 and macrophages play complementary roles in T follicular helper responses.

The Journal of experimental medicine : DOI : [jem.20181994](https://doi.org/10.1084/jem.20181994)

Gentili M1, Lahaye X1, Nadalin F1, Nader GPF2, Puig Lombardi E3, Herve S4, De Silva NS1, Rookhuizen DC1, Zueva E1, Goudot C1, Maurin M1, Bochnakian A1, Amigorena S1, Piel M2, Fachinetti D4, Londoño-Vallejo A3, Manel N5. (2019 Feb 26)

The N-Terminal Domain of cGAS Determines Preferential Association with Centromeric DNA and Innate Immune Activation in the Nucleus.

Cell reports : 26(9) : 2377-2393 : DOI : [10.1016/j.celrep.2019.01.105](https://doi.org/10.1016/j.celrep.2019.01.105)

Year of publication 2018

Paula Michea, Floriane Noël, Eve Zakine, Urszula Czerwinska, Philémon Sirven, Omar Abouزيد, Christel Goudot, Alix Scholer-Dahirel, Anne Vincent-Salomon, Fabien Reyat, Sebastian Amigorena, Maude Guillot-Delost, Elodie Segura, Vassili Soumelis (2018 Jul 18)

Adjustment of dendritic cells to the breast-cancer microenvironment is subset specific.

Nature immunology : 885-897 : DOI : [10.1038/s41590-018-0145-8](https://doi.org/10.1038/s41590-018-0145-8)

Luigia Pace, Christel Goudot, Elina Zueva, Paul Gueguen, Nina Burgdorf, Joshua J. Waterfall, Jean-Pierre Quivy, Geneviève Almouzni, Sebastian Amigorena (2018 Jan 12)

The epigenetic control of stemness in CD8+ T cell fate commitment

Science : 359 : 177-186 : DOI : [10.1126/science.aah6499](https://doi.org/10.1126/science.aah6499)

Year of publication 2017

Christel Goudot, Alice Coillard, Alexandra-Chloé Villani, Paul Gueguen, Adeline Cros, Siranush Sarkizova, Tsing-Lee Tang-Huau, Mylène Bohec, Sylvain Baulande, Nir Hacohen, Sebastian Amigorena, Elodie Segura (2017 Sep 21)

Aryl Hydrocarbon Receptor Controls Monocyte Differentiation into Dendritic Cells versus Macrophages.

Immunity : 582-596.e6 : DOI : [S1074-7613\(17\)30374-6](https://doi.org/10.1016/j.immuni.2017.09.006)

Andrés Alloatti, Derek C Rookhuizen, Leonel Joannas, Jean-Marie Carpier, Salvador Iborra, Joao G Magalhaes, Nader Yatim, Patrycja Kozik, David Sancho, Matthew L Albert, Sebastian Amigorena (2017 Jul 1)

Critical role for Sec22b-dependent antigen cross-presentation in antitumor immunity.

The Journal of experimental medicine : 2231-2241 : DOI : [10.1084/jem.20170229](https://doi.org/10.1084/jem.20170229)

Cerboni S, Jeremiah N, Gentili M, Gehrmann U, Conrad C, Stolzenberg MC, Picard C, Neven B, Fischer A, Amigorena S, Rieux-Laucat F, Manel N (2017 May 8)

Intrinsic antiproliferative activity of the innate sensor STING in T lymphocytes

The Journal of Experimental Medicine : [DOI : 10.1084/jem.20161674](https://doi.org/10.1084/jem.20161674)

Year of publication 2012

Luigia Pace, Andy Tempez, Catharina Arnold-Schrauf, Fabrice Lemaitre, Philippe Bousso, Luc Fetler, Tim Sparwasser, Sebastian Amigorena (2012 Nov 1)

Regulatory T cells increase the avidity of primary CD8+ T cell responses and promote memory.

Science (New York, N.Y.) : 532-6 : [DOI : 10.1126/science.1227049](https://doi.org/10.1126/science.1227049)

Olivier P Joffre, Elodie Segura, Ariel Savina, Sebastian Amigorena (2012 Jul 13)

Cross-presentation by dendritic cells.

Nature reviews. Immunology : 557-69 : [DOI : 10.1038/nri3254](https://doi.org/10.1038/nri3254)

Elodie Segura, Maxime Touzot, Armelle Bohineust, Antonio Cappuccio, Gilles Chiochia, Anne Hosmalin, Marc Dalod, Vassili Soumelis, Sebastian Amigorena (2012 May 11)

Human inflammatory dendritic cells induce Th17 cell differentiation.

Immunity : 336-48 : [DOI : 10.1016/j.immuni.2012.10.018](https://doi.org/10.1016/j.immuni.2012.10.018)

Year of publication 2011

Ignacio Cebrian, Geraldine Visentin, Nicolas Blanchard, Mabel Jouve, Alexandre Bobard, Catarina Moita, Jost Enninga, Luis F Moita, Sebastian Amigorena, Ariel Savina (2011 May 17)

Sec22b regulates phagosomal maturation and antigen crosspresentation by dendritic cells.

Cell : 1355-68 : [DOI : 10.1016/j.cell.2011.11.021](https://doi.org/10.1016/j.cell.2011.11.021)

Year of publication 2009

Matias Ostrowski, Nuno B Carmo, Sophie Krumeich, Isabelle Fanget, Graça Raposo, Ariel Savina, Catarina F Moita, Kristine Schauer, Alistair N Hume, Rui P Freitas, Bruno Goud, Philippe Benaroch, Nir Hacohen, Mitsunori Fukuda, Claire Desnos, Miguel C Seabra, François Darchen, Sebastian Amigorena, Luis F Moita, Clotilde Thery (2009 Aug 14)

Rab27a and Rab27b control different steps of the exosome secretion pathway.

Nature cell biology : 19-30; sup pp 1-13 : [DOI : 10.1038/ncb2000](https://doi.org/10.1038/ncb2000)