

CURRICULUM VITAE

Dr Annabelle BALLESTA

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Education/Qualifications:

Dates From To		Universities/colleges attended	Subjects	Degree
05/2007	06/2011	Inria Paris-Rocquencourt & Université Paris 11 (ED569), France	Systems pharmacology of anticancer drugs	PhD
09/2002	11/2005	INSA (National Institute of Applied Science), Rouen, France	Applied mathematics and computer science	French "Diplôme d'ingénieur"
06/2000	06/2000	Lycée Descartes, Rabat, Morocco	Scientific	French "Baccalauréat"

Appointments held:

Dates From To		Name of organisation and position held.	Type of appointment
01/2018	Now	ATIP-Avenir Researcher, INSERM, Délégation Paris 11, Villejuif France	Fixed-term, full-time
11/2014	12/2017	Assistant professor, University of Warwick, Systems Biology Centre, Coventry, UK	Permanent, full-time
01/2013	08/2014	Postdoctoral fellow, Mount Sinai School of Medicine, New York, NY, USA	Fixed-term, full-time
09/2011	12/2012	Postdoctoral fellow, Hôpital Saint-Antoine & Université Paris 6, France	Fixed-term, full-time
05/2007	06/2011	PhD student, Inria Paris-Rocquencourt & Université Paris 11, France	Fixed-term, full-time
01/2006	04/2007	Master student, Université de Montréal, Canada	Fixed-term, full-time
10/2004	06/2005	Undergraduate exchange student, University of Leeds, UK	Fixed-term, full-time

Research Grants and Contracts:

Date	Project Title	Funding Body	Involvement	Names of Other Holders	Total Awarded
2020	2-year post-doctoral fellowship on "Personalization of temozolomide-based treatment against brain tumors"	ARC	Supervisor	Hugo Martin (postdoc)	€120,000
2019	CNRS-INSERM call on "Santé numérique"	CNRS-INSERM	Co-I	A Stéphanou	€23,000
2018-2021	Inria-Inserm PhD studentship	Inria-Inserm	Co-supervisor	J Martinelli, F Fages	€120,900
2018-2022	ATIP-AVENIR fellowship (2018-2021)	Plan Cancer	PI	None	€400,000 +PI salary
2017	Clinical relevance of circadian and sleep timing in cancer patients	Monash-Warwick Alliance	PI	P Innominato	£5,684+ A\$11,000
2016	CaSym Research Grant	EU FP7	PI	P Innominato	€4,000

2015-2016	Sex-specific hepatic circadian rhythms in	Warwick Research Development Fund	PI	F Lévi, R Dallmann	£22,000
2016-2019	New Generation Clock-Based Chemotherapy	Cancer Research UK	Co-I	S Perrier, F Lévi, R Dallmann, D Rand, P Sadler	£500,000

Publications

In international peer-reviewed journals (chronological order):

- ❖ Y Zhang, A Devocelle, L Souza, A Foudi, S Tenreira Bento, C Desterke, RM. Sherrard, **A Ballesta**, R Adam, J Giron-michel, Y Chang, *BMAL1 knockdown triggers different colon carcinoma cell fates by altering the delicate equilibrium between AKT/mTOR and P53/P21 pathways*, **Aging**, 2020 May 10;12(9). doi: 10.18632/aging.103124
- ❖ Innominato PF, **Ballesta A**, Huang Q, Focan C, Chollet P, Karaboué A, Giacchetti S, Bouchahda M, Adam R, Garufi C, Lévi FA. Sex-dependent least toxic timing of irinotecan combined with chronomodulated chemotherapy for metastatic colorectal cancer: Randomized multicenter EORTC 05011 trial. **Cancer Medicine** 2020 Apr 22. doi: 10.1002/cam4.3056
- ❖ RJW Hill, PF Innominato, F Lévi, **A Ballesta**, *Optimizing drug infusion schedules towards personalized cancer chronotherapy*, **PLoS Computational Biology**, 2020 Jan 27;16(1):e1007218.
- ❖ **A Ballesta**, F Billy, JPC Coverdale, JI Song, C Sanchez-Cano, I Romero-Canelón, PJ Sadler. *Kinetic analysis of the accumulation of a half-sandwich organo-osmium pro-drug in cancer cells*. **Metalomics**. 2019 Oct 16;11(10):1648-1656.
- ❖ A. Okyar, SA Kumar SA, E Filipski, E Piccolo, N Ozturk, H Xandri-Monje, Z Pala, K Abraham, ARG Gomes, MN Orman, XM Li, R Dallmann, F Lévi, **A Ballesta** Sex-, feeding-, and circadian time-dependency of P-glycoprotein expression and activity - implications for mechanistic pharmacokinetics modeling. **Scientific Reports**, 2019 Jul 19;9(1):10505.
- ❖ A Stéphanou, **A Ballesta**, *pH as a potential therapeutic target to improve temozolomide antitumor efficacy: A mechanistic modeling study*, **Pharmacology Research & Perspectives**, 2019 Jan 28;7(1):e00454.
- ❖ PF Innominato, S Komarzynski, OG Palesh, R Dallmann, GA Bjarnason, S Giacchetti, A Ulusakarya, M Bouchahda, M Haydar M, **A Ballesta**, A Karaboué, NI Wreglesworth, D Spiegel, F Lévi. *Circadian rest-activity rhythm as an objective biomarker of patient-reported outcomes in patients with advanced cancer*. **Cancer Medicine**. 2018 Sep;7(9):4396-4405.
- ❖ A Stéphanou, E Fanchon, PF Innominato, **A Ballesta**. *Systems Biology, Systems Medicine, Systems Pharmacology: The What and The Why*. **Acta Biotheoretica**. 2018 Dec;66(4):345-365
- ❖ **A Ballesta**, R Dallmann, D Rand, P Innominato, F Lévi *Systems Chronotherapeutics*, **Pharmacological Reviews**, 2017 Apr; 69(2):161-199.
- ❖ S Dulong, **A Ballesta**, A Okyar, F Lévi : *Identification of circadian determinants of cancer chronotherapy through in vitro chronopharmacology and mathematical modeling*, **Molecular Cancer Therapeutics**, 2015, 14(9):2154-64.
- ❖ **A Ballesta**, Q Zhou, X Zhang, H Lv, JM Gallo: *A multi-scale approach to develop cell type-specific pharmacokinetic/pharmacodynamic models: intracellular brain and brain tumor disposition of temozolomide*, **CPT: pharmacometrics and systems pharmacology**, 2014, 3, e112.
- ❖ **A Ballesta**, J Clairambault: *Physiologically based mathematical models to optimize therapies against metastatic colorectal cancer: a mini-review*, **Current Pharmaceutical Design**, 2013 Mar, 20(1): 37-48.
- ❖ **A Ballesta**, J Lopez, N Popgeorgiev, P Gonzalo, M Doumic-Jauffret, G Gillet: *Modeling Src control on the mitochondrial pathway of apoptosis, implications for cancer therapeutics*, **PLoS Computational Biology**, 2013 Apr; 9(4):e1003011
- ❖ **A Ballesta**, S Dulong, A Okyar, C Abbara, B Cohen, J Clairambault, F Lévi: *A combined biological and mathematical approach for studying the circadian control of the anticancer drug Irinotecan Pharmacokinetics-Pharmacodynamics at a molecular level*, **PLoS Computational Biology**, 2011 Sep; 7(9):e1002143.
- ❖ **A Ballesta**, J Clairambault, S Dulong, F Lévi: *Theoretical Optimization of Irinotecan-based Anticancer Strategies in case of Drug-induced Efflux*, **Applied Mathematics Letters**, 2011 Jul; 24 (7): 1251-1256.
- ❖ S Prigent, **A Ballesta**, F Charles, N Lenuzza, P Gabriel, LM Tine, H Rezaei, M Doumic: *An Efficient Kinetic Model for Assemblies of Amyloid Fibrils and Its Application to Polyglutamine Aggregation*, **PLoS One**, 2012; 7(11):e43273.
- ❖ F Thomas, D Fisher, [...], **A Ballesta**, [...], U Hibner, MHochberg: *Applying ecological and evolutionary theory to cancer: a long and winding road*, **Evolutionary Applications**, 2012 Nov; doi:10.1111/eva.12021

Book Chapters:

- ❖ **A. Ballesta**, Circadian Rhythms, 3rd edition of the Encyclopedia of Molecular Pharmacology, edited by Stefan Offermanns and Walter Rosenthal, Springer, in press.
- ❖ **A. Ballesta**, J. Clairambault, S. Dulong, F. Lévi: *A systems biomedicine approach for chronotherapeutics optimization: focus on the anticancer drug irinotecan*. In: **New Challenges for Cancer Systems Biomedicine**, SIMAI Lecture Notes, Springer, 2012, pp 301-327, ISBN 978-88-470-2571-4.
- ❖ E. Ortiz, A. Mteyrek, **A. Ballesta**, P. Innominato, F. Levi: *Circadian timing in cancer treatments*. In: **Circadian Clocks**, Handbook of Experimental Pharmacological Series, Springer, 2013, pp 261-88, ISBN 978-3-642-25950-0.
- ❖ J.L. Avila, C. Bonnet, J. Clairambault, H. Ozbay, S.I. Niculescu, F. Merhi, **A. Ballesta**, R. Tang and J.P. Marie: *Analysis of a new model of cell population dynamics in Acute Myeloid Leukemia*. In: **Advances in Delays and Dynamics**, Springer, 2014, pp 315-328, ISBN 978-3-319-05575-6.

Scientific Popularisation:

- ❖ **Animation movie**, *Cancer Chronotherapeutics*, **A. Ballesta**, A. Langlois, C. Mistral, 2011, English : <http://vimeo.com/53780236> , French : <http://vimeo.com/42919698>
- ❖ **Short movie**, *Soyez sympas, synchronisez !*, **A. Ballesta**, festival “Les Chercheurs font leur cinema”, 2009, in French : <http://vimeo.com/42848514>
- ❖ **Serious video game** *Chronothérapie*, **A. Ballesta**, Sydo and Little Worlds companies, in French, PC or MAC version : <http://annabelle.ballesta.fr/downloads>

Research Valorization

Patent:

“Method of controlling fluid flow exiting infusion pumps”, patent application n° 18181320.5, application through INSERM Transfert in July 2018.

Research Supervision

- Sept 2021-Sept 2024: Jorge Bretones-Santamarina, PhD student, co-supervision with Institut Gustave Roussy.
- Sept 2019- Sept 2021: Hugo Martin, postdoctoral fellow.
- Sept 2018- Sept 2021: Julien Martinelli, PhD student, co-supervision with Inria Saclay.
- Jan-Aug 2019: Elise Roth, M1 student and then Ingénieur d'études
- Jan-Aug 2018 Jean Machowiack, Ingénieur d'études.
- Jan-Jun 2018: Deborah Boyenval, Master project, Université Nice Sophia Antipolis, France.
- Sept 2016- Sept 2019: PhD thesis of M. Roger Hill, “Mathematics for real-world systems” Centre for Doctoral Training (MathSys CDT), University of Warwick, UK.
- June-Sept 2016: supervision of M. Roger Hill and Luke Whincop, co-supervision of Jack Binysh, Master project, MathSys CDT.
- June-Sept 2015: Esther Wershof, Master project, MathSys CDT.

Evaluation

- Grant Reviews: la Ligue contre le cancer (France), BBSRC (UK).
- Article reviews: PLoS Comp Biol, Current Pharmaceutical Design, eBiomedicine, Cell reports.
- « Examinateur » in PhD Committees: September 2019, Dr Mohamed Ladjimi, Université de Lille; December 2018, Dr Sofia Almeida, Université Nice-Côte d'azur; October 2015, Dr Baptiste Bedessem, Université Joseph Fourier, Grenoble.
- 2015-2017: Member of PhD advisory board of Miss Denise Vlachou (Warwick, MOAC CDT) and M. Matthew Neal (Warwick, department of Statistics).

Prizes and international recognition

- 2018: invited conference, “PK-PD expert Meeting”, Friedrichroda, Germany
- 2017: invited conference, “Workshop on Mathematical Medicine and Mathematical Pharmacology”, University of Swansea, UK.
- 2016: Invited conference, ASPET annual meeting, Chronopharmacology session, San Diego, USA
- 2016: invited conference, “Quantitative Systems Pharmacology” UK-QSP conference, University of Surrey, UK
- 2014: **Travel award** for the conference *Translating Cancer Data and Models to Clinical Practice*, attributed by the University of California in Los Angeles (UCLA, USA).
- 2013: **Travel award** for the annual meeting of the Society for Mathematical Biology (SMB), attributed by the SMB, funded by Pfizer (USA).
- 2011: Invited conference “Mathematical Oncology: new challenges for systems biomedicine”, Erice, Italy

- 2011: Invited conference, “Young Investigators International Workshop”, Université de Rouen, France
- 2009: **“Le goût des sciences” award for best scientific popularization initiative**, awarded by the French Ministry of Research to the festival “Les Chercheurs font leur cinéma” which I participated in.
- 2009: **Delattre prize for best oral presentation of a PhD student**, awarded by the French-Speaking Society of Theoretical Biology.

Teaching

- 2015-2017: MA256 “Introduction to Systems Biology”, Undergraduate, Warwick Mathematics Institute (24h)
- 2014-2016, Five tutorials on Systems Medicine, within the CaSym European network, (Stuttgart, Germany; Paris, France; Ljubjana, Slovenia; Berlin, Germany, 20h).
- 2016: BS347 “Oncology”, postgraduate, Warwick Medical School (1h)
- 2014: Postgraduate session “Model Building”, Warwick School of Life Sciences (3h)
- 2012: Lecture on the chronopharmacology of irinotecan , Master “Modélisation de Systèmes Biologiques”, Université Rennes 1, France (2 h).
- 2006- 2007 Teaching Assistant in Mathematics at the Université de Montréal, Canada : MATH1101 « Mathématiques fondamentales » (100 h), MATH1905 «Vecteurs et algèbre linéaire» (109 h), MATH1500 «Mathématiques discrètes » (100 h)

Institutional Responsibilities

- 2016-2017: Student admissions of Mathsys Centre for Doctoral Training: organization of open days (3/year), student interviews and admission decision.
- 2015-2017: Personal tutor of 3 MathSys MSc students and 5 undergraduate students, Warwick Mathematics Institute.