

Publications

1. Chazeau E, Fabre C, Privat M, Godard A, Racœur C, Bodio E, Busser B, Wegner K, Sancey L*, **Paul C***, Goze C*. Comparison of the in vitro and in vivo behavior of a series of NIR-II emitting aza-BODIPYs containing different water-solubilizing groups and their Trastuzumab Antibody Conjugates. *J Med Chem*. In press. * Contributed equally
2. Privat M, Massot A, Hermetet F, Al Sabea H, Racœur C, Mabrouk N, Cordonnier M, Moreau M, Collin B, Bettaieb A, Denat F, Bodio E*, Bellaye PS, Goze C*, **Paul C***. Development of an Immuno-SPECT/Fluorescent Bimodal Tracer Targeting Human or Murine PD-L1 on Preclinical Models. *J Med Chem*. 2024 Feb 8;67(3):2188-2201. * Contributed equally
3. Mabrouk N, Racœur C, Shan J, Massot A, Ghione S, Privat M, Dondaine L, Ballot E, Truntzer C, Boidot R, Hermetet F, Derangère V, Bruchard M, Végran F, Chouchane L, Ghiringhelli F, Bettaieb A, **Paul C**. GTN enhances antitumor effects of doxorubicin in TNBC by targeting the immunosuppressive activity of PMN-MDSC. *Cancers (Basel)* 2023 Jun 9;15(12):3129.
4. Privat M, Bellaye PS, Chazeau E, Racœur C, Adumeau P, Vivier D, Bernhard C, Moreau M, Collin B, Bettaieb A, Denat F, Bodio E, **Paul C***, Goze C*. First Comparison Study of the In Vitro and In Vivo Properties of a Randomly and Site-Specifically Conjugated SPECT/NIRF Monomolecular Multimodal Imaging Probe (MOMIP) Based on an aza-BODIPY Fluorophore. *Bioconjug Chem*. 2023 Mar 27. doi: 10.1021/acs.bioconjchem.3c00080. * Contributed equally
5. Godard A, Kalot G, Privat M, Bendellaa M, Busser B, Wegner KD, Denat F, Le Guével X, Coll JL, **Paul C**, Bodio E, Goze C, Sancey L. NIR-II aza-BODIPY dyes bioconjugated to monoclonal antibody trastuzumab for selective imaging of HER2-positive ovarian cancer. *J Med Chem*, 2023 Apr 13;66(7):5185-5195.
6. Dumétier B, Zadoroznyj A, Berthelet J, Causse S, Allègre J, Bourgeois P, Cattin F, Racœur C, **Paul C**, Garrido C, Dubrez L. cIAP1/TRAF2 interplay promotes tumor growth through the activation of STAT3. *Oncogene*. 2023 Jan;42(3):198-208.
7. Baurand PE, Balland J, Reynas C, Ramseyer M, Vivier D, Bellaye PS, Collin B, **Paul C**, Denat F, Asgarov K, Pallandre JR, Ringenbach L. Development of Anti-LRRC15 Small Fragments for Imaging Purposes Using a Phage-Display ScFv Approach. *Int J Mol Sci*. 2022 Oct 21;23(20):12677.
8. Kalot G, Godard A, Busser B, Bendellaa M, Dalonneau F, **Paul C**, Le Guével X, Josserand V, Coll JL, Denat F, Bodio E, Goze C, Gautier T, Sancey L. Lipoprotein interactions with water-soluble NIR-II emitting aza-BODIPYs boost the fluorescence signal and favor selective tumor targeting. *Biomaterials Science*. 2022 Sep 23. Oct 25;10(21):6315-6325.
9. Ghione S, Racœur C, Mabrouk N, Shan J, Groetz E, Ballot E, Truntzer C, Chouchane L, Végran F, **Paul C**, Plenchette S, Bettaieb A. Protein Kinase Inhibitor-Mediated Immunoprophylactic and Immunotherapeutic Control of Colon Cancer. *Front Immunol*. 2022 Apr 28;13:875764.
10. Mabrouk N, Lecoœur B, Bettaieb A, **Paul C**, Végran F. Impact of Lipid Metabolism on Antitumor Immune Response. *Cancers (Basel)*. 2022 Apr 6;14(7):1850.
11. Rousselle B, Massot A, Privat M, Dondaine L, Trommenschlager A, Bouyer F, Bayardon J, Ghiringhelli François, Bettaieb A, Goze C*, **Paul C***, Malacea-Kabbara R* and Bodio E*. Conception and evaluation of fluorescent phosphine-gold complexes: from synthesis to in vivo investigations. *ChemMedChem*. 2022. In press. * Contributed equally
12. Bruchard M, Geindreau M, Perrichet A, Truntzer C, Ballot E, Boidot R, Racœur C, Barsac E, Chalmin F, Hibos C, Baranek T, Paget C, Ryffel B, Rébé C, **Paul C**, Végran F and Ghiringhelli F. Recruitment and activation of type 3 innate lymphoid cells promote antitumor immune responses. *Nat. Immunol*. 2022 Feb;23(2):262-274
13. Privat M, Bellaye PS, Lescure R, Massot A, Baffroy O, Moreau M, Racœur C, Marcion G, Denat F, Bettaieb A, Collin B, Bodio E*, **Paul C***, Goze C*. Development of an Easily Bioconjugatable Water-Soluble Single-Photon Emission-Computed Tomography/Optical Imaging Bimodal Imaging Probe Based on the aza-BODIPY Fluorophore. *J Med Chem*. 2021 Aug 12;64(15):11063-11073.* Contributed equally.

14. Lescure R, Privat M, Pliquett J, Massot A, Baffroy O, Busser B, Bellaye PS, Collin B, Denat F, Bettaieb A, Sancey L, **Paul C***, Goze C*, Bodio E*. 2021. Near-infrared emitting fluorescent homobimetallic gold(I) complexes displaying promising in vitro and in vivo therapeutic properties. *Eur J Med Chem.* Aug 5;220:113483. * Contributed equally.
15. Mabrouk N, Ghione S, Laurens V, Plenchette S, Bettaieb A, **Paul C.** 2020. Senescence and Cancer: Role of Nitric Oxide (NO) in SASP. *Cancers (Basel).* 12(5):E1145.
16. Ghione S, Mabrouk N, **Paul C,** Bettaieb A, Plenchette S. 2020. Protein kinase inhibitor-based cancer therapies: Considering the potential of nitric oxide (NO) to improve cancer treatment. *Biochem Pharmacol.* 113855
17. Flores O, Velic D, Mabrouk N, Bettaieb A, Tomasoni C, Robert JM, **Paul C,** Goze C, Roussakis C, Bodio E. 2019. Rapid synthesis and anti-proliferative properties of polyazamacrocyclic-based bi- and tetra-gold(I) phosphine dithiocarbamate complexes. *ChemBioChem.* 20(17):2255-2261
18. Sali W, Patoli D, Pais de Barros JP, Labbé J, Deckert V, Duhéron V, Le Guern N, Blache D, Chaumont D, Lesniewska E, Gasquet B, Paul C, Moreau M, Denat F, Masson D, Lagrost L, Gautier T. 2019. Polysaccharide Chain Length of Lipopolysaccharides From Salmonella Minnesota Is a Determinant of Aggregate Stability, Plasma Residence Time and Proinflammatory Propensity in vivo. *Front Microbiol.* 10:1774.
19. Pliquett J, Dubois A, Racœur C, Mabrouk N, Amor S, Lescure R, Bettaieb A, Collin B, Bernhard C, Denat F, Bellaye PS, **Paul C***, Bodio E*, Goze C*. 2019. A promising family of fluorescent water-soluble aza-BODIPY dyes for in vivo molecular imaging. *Bioconjugate chemistry.* In favorable review. * Contributed equally.
20. Pliquett J, Amor S, Ponce-Vargas M, Laly M, Racœur C, Rousselin Y, Denat F, Bettaieb A, Fleurat-Lessard P, **Paul C,** Goze C, Bodio E. 2018. Design of a multifunctionalizable BODIPY platform for the facile elaboration of a large series of gold(I)-based optical theranostics. *Dalton Transaction.* DOI: 10.1039/C8DT02364F
21. Martin A, Seignez C, Racœur C, Isambert N, Mabrouk N, Scagliarini A, Reveneau S, Arnould L, Bettaieb A, Jeannin JF, **Paul C.** 2018. Tumor-derived granzyme B-expressing neutrophils acquire antitumor potential after lipid A treatment. *Oncotarget,* 9(47):28364-28378.
22. Dosset M, Rivera Vargas T, Lagrange A, Boidot R, Végran F, Roussey A, Dondaine L, **Paul C,** Lauret Marie-Joseph E, Martin F, Ryffel B, Borg C, Adotévi O, Ghiringhelli F and Apetoh A. 2018. Immunogenic cell death induction by chemotherapy promotes adaptive immune resistance in colorectal cancer via activation of the PD1/PD-L1 pathway. *Oncoimmunol.* 15;7(6):e1433981
23. Chotard F, Dondaine L, Balan C, Bettaieb A, **Paul C,** Le Gendre P, Bodio E. 2017. Highly antiproliferative neutral Ru(II)-arene phosphine complexes. *New J Chem.* 42(10):8105-8112
24. Bettaieb A, Paul C, Plenchette S, Shan J, Chouchane L, Ghiringhelli F. 2017. Precision Medicine in breast cancer: reality or utopia? *Journal of Translational Medicine,* 15(1):139.
25. Trommschläger A, Bertrand B, Chotard F, Chalumeau-Delamasure S, Dondaine L, Picquet M, Denat F, Bettaieb A, Le Gendre P, Dutartre P, **Paul C,** Goze C and Bodio E. 2017. Gold(I)-BODIPY-imidazole bimetallic complexes as new potential anti-inflammatory and anticancer trackable agents. *Dalton Transactions,* 46(25):8051-8056.
26. Bettaieb A, **Paul C,** Plenchette S. 2017. Exploration of Fas S-Nitrosylation by the Biotin Switch Assay. *Methods Mol Biol.* 1557:199-206.
27. Ben Bahria-Sediki I, Yousfi N, **Paul C,** Chebil M, Cherif M, Zermani R, El Gaaied M, Bettaieb A. 2016. Clinical significance of T-bet, GATA-3, and Bcl-6 transcription factor expression in bladder carcinoma. *J Transl Med.* 14:144.
28. Dondaine L, Escudero D, Ali M, Richard P, Denat F, Bettaieb A, Le Gendre P, **Paul C,** Jacquemin D, Goze C and Bodio E. 2016. Coumarin-phosphine-based smart probes for tracking biological relevant metal complexes: from theoretical to biological investigations. *Eur JIC.* 4:545-553
29. Lamrani M*, Sassi N*, **Paul C***, Yousfi N, Boucher JL, Gauthier N, Labbé J, Seignez C, Racœur C, Athias A, Guerreiro R, Vergely C, Rochette L, Bettaieb B and Jeannin JF. 2015. TLR4/IFN γ pathways

- induce tumor regression via NOS II-dependent NO and ROS production in murine breast cancer models. *Oncoimmunology*. 5:e1123369. * Contributed equally.
30. Ali M, Dondaine L, Adolle A, Sampaio C, Chotard F, Richard P, Denat F, Bettaieb A, Le Gendre P, Laurens V, Goze C, **Paul C***, Bodio E*. 2015. Anticancer agents: does a phosphonium behave like a gold(I) phosphine complex? Let a "smart" probe answer! *J Med Chem*. 58(11):4521-8.* co-corresponding authors
 31. Cortier M, Boina-Ali R, Racœur C, **Paul C**, Solary E, Jeannin JF and Bettaieb A. 2015. H89 enhances the sensitivity of cancer cells to glyceryl trinitrate through a purinergic receptor-dependent pathway. *Oncotarget*. 6(9):6877-86
 32. Doulain PE, Decréau R, Racœur C, Goncalves V, Dubrez L, Bettaieb A, Le Gendre P, Denat F, **Paul C***, Goze C* and Bodio E*. 2015. Towards the elaboration of new gold-based optical theranostics. *Dalton Transactions*. 44(11):4874-83.* co-corresponding authors
 33. Tasan S, Licon C, Doulain PE, Michelin C, Gros C, Le Gendre P, Harvey P, **Paul C**, Gaidon C, Bodio E. 2015. Gold-phosphine porphyrin as potential metal-based theranostics. *J. Biol. Inorg. Chem*. 20(1):143-54.
 34. Seigneux C, Martin A, Rollet CE, Racœur C, Scagliarini A, Jeannin JF, Bettaieb A and **Paul C**. 2014. Senescence of tumor cells induced by oxaliplatin increases the efficiency of a lipid A immunotherapy via the recruitment of neutrophils. *Oncotarget*. 5(22):11442-51.
 35. Ali-Boina R, Cortier M, Decologne N, Racœur-Godard C, Seigneux C, Lamrani M, Jeannin JF, **Paul C** and Bettaieb A. 2013. Activation of Akt by the mammalian target of rapamycin complex 2 renders colon cancer cells sensitive to apoptosis induced by nitric oxide and akt inhibitor. *Carcinogenesis & Mutagenesis*. S8: 004
 36. Marivin A, Berthelet J, Cartier J, **Paul C**, Gemble S, Morizot A, Boireau W, Saleh M, Bertoglio J, Solary E, Dubrez L. 2013. cIAP1 regulates TNF-mediated cdc42 activation and filopodia formation. *Oncogene*. 33(48):5534-45.
 37. Mirjolet C, Papa AL, Créhange G, Raguin O, Seigneux C, **Paul C**, Truc G, Maingon P and Millot N. 2013. The radiosensitization effect of titanate nanotubes as a new tool in radiation therapy for glioblastoma: a proof-of-concept. *Radiother Oncol*. 108(1):136-42.
 38. Isambert N, Fumoleau P, **Paul C**, Ferrand C, Zanetta S, Bauer J, Ragot K, Lizard G, Jeannin JF, Bardou M. 2013. Phase I study of OM-174, a lipid A analogue, with assessment of immunological response, in patients with refractory solid tumors. *BMC Cancer*. 13(1):172.
 39. Garrido C, **Paul C**, Seigneux R, Kampinga HH. 2012. The small heat shock proteins family: the long forgotten chaperones. *Int. J. Biochem. Cell. Biol*. 44:1588-92
 40. Guery L, Benikhlef N, Gautier T, **Paul C**, Jégo G, Dufour E, Jacquelin A, Cally R, Manoury B, Vanden Berghe T, Vandenabeele P, Droin N and Solary E. 2011. Fine-tuning nucleophosmin in macrophage
 41. Leon-Bollotte L, Subramaniam S, Cauvard O, Planchette-Colas S, **Paul C**, Godard C, Martinez-Ruiz A, Legembre P, Jeannin JF and Bettaieb A. 2011. S-Nitrosylation of the Death Receptor Fas Promotes Fas Ligand-Mediated Apoptosis in Cancer Cells. *Gastroenterology* 140: 2009-18.
 42. Gautier T *, **Paul C ***, Deckert V, Desrumaux C, Klein A, Labbé J, Le Guern N, Athias A., Monier S, Hammann A, Bettaieb A, Jeannin JF and Lagrost L. 2010. Innate immune response triggered by triacyl lipid A is dependent on phospholipid transfer protein (PLTP) gene expression. *Faseb J*. 29: 3544-54 * Contributed equally to the present work
 43. Sassi N, **Paul C**, Martin A, Bettaieb A and Jeannin JF. 2010. Lipid A-induced responses in vivo. In *Lipid A in cancer therapy*. *Adv Exp Med Biol*. 2010;667:69-80.
 44. **Paul C ***, Simon S*, Gibert B*, Virot S, Manero F and Arrigo AP. 2010. Dynamic processes that reflect

anti-apoptotic strategies set up by HspB1 (Hsp27). *Exp. Cell. Research* 316:1535-1552 * Contributed equally to the present work

45. Jeannin JF, Leon L, Cortier M, Sassi N, **Paul C** and Bettaieb A. 2008. Nitric oxide induced-resistance or sensitization to death in tumor cells. *Nitric Oxide*, 19:158-163
46. Gautier T, Klein A, Deckert V, Desrumaux C, Ogier N, Sberna A-L, **Paul C**, Le Guern N, Montange T, Monier S, Piard F, Jiang XC, Masson D and Lagrost L. 2008. Effect of plasma phospholipid transfer protein deficiency on lethal endotoxemia in mice. *J. Biol. Chem.* 283:18702-18710.
47. Poyau A, Vincent L, Berthommé H, **Paul C**, Nicolas B, Pujol JF and Madjar JJ. 2007. Identification and relative quantification of adenosine to inosine editing in serotonin 2c receptor mRNA by CE. *Electrophoresis* 28:2843-2852
48. Arrigo AP, Firdaus WJJ, Mellier G, Moulin M, **Paul C**, Diaz-Latoud C and Kretz-Remy C. 2005. Cytotoxic effects induced by oxidative stress in cultured mammalian cells and protection provided by Hsp27 expression. *Methods* 35:126-138
49. Merendino AM, **Paul C**, Costa MA, Melis M, Chiappara G, Izzo V, Vignola AM and Arrigo AP. 2002 Heat Shock protein 27 protects human bronchial epithelial cells against apoptosis. *Cell Stress & Chaperones* 7:269-280
50. **Paul C**, Manero F, Gonin S, Kretz-Remy C, Viroit S and Arrigo AP. 2002. Hsp27 as a negative regulator of cytochrome c release. *Mol Cell Biol.* 22:816-834
51. Samali A, Robertson JD, Peterson E, Manero F, van Zeijl L, **Paul C**, Cotgreave IA, Arrigo AP and Orrenius S. 2001. Hsp27 protects mitochondria of thermotolerant cells against apoptotic stimuli. *Cell Stress & Chaperones* 6:49-58
52. Bruey JM*, **Paul C***, Fromentin A, Hilpert S, Arrigo AP, Solary E and Garrido C. 2000. Differential regulation of HSP27 oligomerization in tumor cell grown in vitro and in vivo. *Oncogene* 19:4855-63
*Co-premiers auteurs
53. **Paul C** and Arrigo AP. 2000. Comparison of the protective activities generated by two survival proteins : Bcl-2 and Hsp27 in L929 murine fibroblasts exposed to menadione or staurosporine. *Exp. Gerontol.* 35(6-7):757-766
54. Rogalla TH, Ehrnsperger M, Prévaille X, Kotlyarov A, Lutsch G, Ducasse C, **Paul C**, Wieskel M, Arrigo AP, Buchner, J and Gaestel M. 1999. Regulation of Hsp27 oligomerisation, chaperone function and protective activity against oxidative stress/TNF α by phosphorylation. *J. Biol. Chem.* 274:18947-18956
55. Prévaille X, Salemini F, Giraud S, Chaufour S, **Paul C**, Stepien G, Ursini MV and Arrigo AP. 1999. Mammalian small stress proteins protect against oxidative stress through their ability to increase glucose-6-phosphate dehydrogenase activity and by maintaining optimal cellular detoxifying machinery. *Exp. Cell. Res.* 247:61-78

Chapitres de livres (6)

1. Plenchette S, **Paul C**, Bettaieb A. Nitric oxide and platinum derivatives-based regimens for cancer treatment: from preclinical studies to clinical trials. Elsevier NO book. Ed. B Bonavida.
2. Bettaieb A, Plenchette S, **Paul C**, Laurens V, Romagny S and Jeannin JF. 2015. S-nitrosylation of cancer cells. In *Nitric Oxide and Cancer. Pathogenesis and Therapy* (Benjamin Bonavida). Springer
3. Cortier M, Leon L, Sassi N, **Paul C**, Jeannin JF, Bettaieb A. NO is a promising enhancer for cancer therapy. 2010: *Nitric Oxide and Cancer*. Editor: Benjamin Bonavida.

4. Martin A, Seignez C, **Paul C**, Bettaieb A and Jeannin JF. 2010. Toll Like Receptor 2 and 4 in cancer immunotherapy, is Nitric Oxide mediator? *Forum on Immunopathological Diseases and Therapeutics* **1**: 307-315
5. Arrigo AP, **Paul C**, Ducasse C, Manero F, Kretz-Remy C, Javouhey E, Virost S, Mounier N and Diaz-Latoud C. 2001. Small stress proteins: novel regulators of apoptosis induced independently of reactive oxygen species. In: *Small stress proteins. Progress in Molecular and Subcellular Biology.* (A.-P. Arrigo and W. E.G. Muller, Eds). Springer Verlag, Berlin, Heidelberg, New-York, Tokyo
6. Arrigo AP, **Paul C**, Ducasse C, Sauvageot O and Kretz-Remy C. 2001. Small stress proteins : modulation of intracellular redox state and protection against oxidative stress induced cytotoxicity. In: *Small stress proteins. Progress in Molecular and Subcellular Biology.* (A.-P. Arrigo and W. E.G. Muller, Eds). Springer Verlag, Berlin, Heidelberg, New-York, Tokyo.