

## Liste complète des productions scientifiques sur la période considérée : Marlène Wiart (2016-2024)

Le fil conducteur de mes travaux est le développement de **méthodes d'imagerie cellulaire in-vivo** pour mieux **comprendre et traiter l'AVC**. Je m'intéresse aux **cellules ayant une fonction immune** (macrophages, microglie, cellules souches mésenchymateuses) car la **neuroinflammation** est une cible thérapeutique prometteuse dans l'AVC. Ce bilan couvre la période depuis ma promotion à la fonction de directrice de recherche en Octobre 2015.

### Bilan synthétique sur la période 2016-2024

- ✓ 28 publications (moyenne de 3/an) : 1 pre-print, 21 articles originaux et 6 publications de synthèse
- ✓ 6 productions de science ouverte : 1 pipeline, 2 data sets, 3 tableurs de données pour l'analyse statistique
- ✓ 6,5 articles / doctorant dont 1 à 3 en premier auteur pour chaque soutenance
- ✓ La taxinomie **CRedit** précise nos contributions spécifiques pour chaque article (se référer aux manuscrits)

### Post-doctorats dirigés

Nom	Dates	Sujet	Devenir
<a href="#">Marina Basalay</a>	2018-2020	Remote ischemic conditioning as a therapeutic strategy in a rat model of ischemic stroke	Associate Researcher University College London
<a href="#">Elisa Cuccione</a>	2016-2018	Imaging macrophages and hydrogels as a therapeutic strategy in stroke with spectral photon-counting CT	Directrice d'études pré-cliniques à Voxcan

### Thèses dirigées

Nom	Soutenance	Sujet	Devenir
<a href="#">Paul Clottes</a>	2025	A new target in IscheMic stroke: EPAC1-based Therapy (IMPACT)	PH Neurologie neurovasculaire
<a href="#">Elodie Ong</a>	21/12/2023	Evaluation de l'effet neuroprotecteur de la cyclosporine A dans un modèle murin d'ischémie cérébrale	PH Neurologie neurovasculaire
<a href="#">Clément Tavakoli</a>	19/06/2023	Suivi de thérapie cellulaire de l'AVC ischémique à l'aide de techniques innovantes d'imagerie basées sur les rayons X	Post-doc Hanovre (Allemagne)
<a href="#">Chloé Dumot</a>	14/12/2021	Apport de l'IRM multiparamétrique pour l'évaluation pré-clinique de thérapies aux stades aiguë et chronique de l'AVC	PH Neurologie neurochirurgie
<a href="#">Violaine Hubert</a>	15/11/2019	IRM des cellules phagocytaires cérébrales dans des modèles murins de neuroinflammation	Post-doc Montréal (Canada)

Les post-doctorants et doctorants encadrés sont indiqués en **rouge souligné**.

### Pré-publication, en cours d'évaluation

Said M\*, [Tavakoli C\\*](#), [Dumot C](#), Toupet K, Dong YC, Collomb N, Auxenfans C, Moisan A, Favier B, Chovelon B, Barbier EL, Jorgensen C, Cormode DP, Noël D, Brun E, Elleaume H, **Wiart M\*\***, Detante O, Rome C, Auzély-Velty R. A novel injectable radiopaque hydrogel with potent properties for multicolor CT imaging in the context of brain and cartilage regenerative therapy. *BioRxiv* 2023 \*Equal contribution, \*\*Corresponding author ([hal-04126192](#))

### Publications originales

Chalet L, Debatisse J, Wateau O, Boutelier T, **Wiart M**, Costes N, Merida I, Redouté J, Langlois JB, Lancelot S, Léon C, Cho TH, Mechtouff L, Faruk Eker O, Nighoghossian N, Canet-Soulas E, Becker G. PREMISE: A database of 20 Macaca Fascicularis PET/MRI brain imaging available for research. *Lab Animal* 2024;53 :13–17 <[hal-04126335](#)>

Chourrout M, Sandt C, Weitkamp T, Dučić T, Meyronet D, Baron T, Klohs J, Rama N, Boutin H, Singh S, Olivier C, **Wiart M**, Brun E, Bohic S, Chauveau F. Virtual histology of Alzheimer's disease: Biometal entrapment within amyloid-beta-plaques allows for detection via X-ray phase-contrast imaging *Acta Biomaterialia* 2023;170: 260-272 ([hal-04046962](#))

**Tavakoli C, Cuccione E, Dumot C**, Balegamire J, Si-Mohamed S, Kim J, Crola-da-Silva- C, Chevalier Y, Berthezene Y, Bousset L, Douek P, Cormode D, Elleaume H, Brun E, **Wuart M**. High-resolution synchrotron K-edge subtraction CT allows tracking and quantifying therapeutic cells and their scaffold in a rat model of focal cerebral injury and can serve as a reference for spectral photon counting CT. *NanoTheranostics* 2023 :16;7(2):176-186. ([hal-03996505](#))

Becker G, Debatisse J, Rivière M, Crola Da Silva C, Beaudoin-Gobert M, Eker O, Wateau O, Cho TH, **Wuart M**, Tremblay L, Costes N, Mérida I, Redouté J, Léon C, Langlois JB, Le Bars D, Lancelot S, Nighoghossian N, Mechtouff L, Canet-Soulas E. Spatio-Temporal Characterization of Brain Inflammation in a Non-human Primate Stroke Model Mimicking Endovascular Thrombectomy. *Neurotherapeutics* 2023;20(3):789-802 <[hal-04310907v1](#)>

Lerouge F\*, **Ong E\***, Rositi H, Mpambani F, Berner LP, Bolbos R, Olivier C, Peyrin F, Apputukan VK, Monnereau C, Andraud C, Chaput F, Berthezène Y, Braun B, Jucker M, Åslund AK, Nyström S, Hammarström P, R Nilsson KP, Lindgren M, **Wuart M**, Chauveau F\*, Parola S\*. In vivo targeting and multimodal imaging of cerebral A $\beta$ -amyloid aggregates using hybrid GdF3 nanoparticles. *Nanomedicine* 2023;17(29):2173-2187 \*Equal contribution ([hal-04038718](#))

Chourrout M, Rositi H, Ong E, **Hubert V**, Paccalet A, Foucault L, Autret A, Fayard B, Olivier C, Bolbos R, Peyrin F, Crola-da-Silva C, Meyronet D, Raineteau O, Elleaume H, Brun E, Chauveau F\*, **Wuart M\***. Brain virtual histology with X-ray phase-contrast tomography Part I: whole-brain myelin mapping in white-matter injury models. *Biomedical Optics Express* 2022;13(3): pp: 1620-1639 \*Equal contribution ([hal-03428448v2](#))

Chourrout M, Roux M, Boisvert C, Gislard C, Legland D, Arganda-Carreras I, Olivier C, Peyrin F, Boutin H, Rama N, Baron T, Meyronet D, Brun E, Rositi H, **Wuart M\***, Chauveau F\*. Brain virtual histology with X-ray phase-contrast tomography. Part II: 3D morphologies of amyloid- $\beta$  plaques in Alzheimer's disease models. *Biomedical Optics Express* 2022;13(3): pp: 1640-1653 \*Equal contribution ([hal-03451419v2](#))

**Dumot C**, Po C, Capin L, **Hubert V, Ong E**, Chourrout M, Bolbos R, Amaz C, Auxenfans C, Canet-Soulas E, Rome C, Chauveau F, **Wuart M**. Neurofunctional and neuroimaging readouts for designing a preclinical stem-cell therapy trial in experimental stroke. *Sci Rep*, 2022, **12**(1): 4700 ([hal-03451443v2](#))

Jahandiez V, Pillot B, Bidaux G, Bolbos R, Stevic N, **Wuart M**, Ovize M, Argaud L, Cour M. Reassessment of mitochondrial cyclophilin D as a target for improving cardiac arrest outcomes in the era of therapeutic hypothermia. *Translational Research* 2022 Jun 9:S1931-5244(22)00137-2. ([hal-03704281](#))

**Hubert V**, Hristovska I, Karpati S, Benkeder S, Dey A, **Dumot C**, Amaz C, Chounlamountri N, Watrin C, Comte JC, Chauveau F, Brun E, Marche P, Lerouge F, Parola S, Berthezène Y, Vorup-Jensen T, Pascual O, and **Wuart M**. Multimodal imaging with NanoGd reveals spatiotemporal features of neuroinflammation after experimental stroke. *Adv Science* 2021, e2101433 ([hal-03428486](#))

Karpati S, **Hubert V**, Hristovska I, Lerouge F, Chaput F, Bretonnière Y, Andraud C, Banyasz A, Micouin G, Monteil M, Lecouvey M, Mercey M, Dey A, Marche, Lindgren M, Pascual O, **Wuart M**, Parola S. Hybrid Multimodal Contrast Agent for Multiscale In Vivo Investigation of Neuroinflammation. *Nanoscale*, 2021,**13**, 3767-3781 ([hal-03134034](#))

**Tavakoli C, Cuccione E, Dumot C**, Cormode D, **Wuart M**, Elleaume H, Brun E. Tracking cells in the brain of small animals using synchrotron multi-spectral phase contrast imaging, *Proc. SPIE 11595, Medical Imaging 2021: Physics of Medical Imaging*, 115954N (2021) ([hal-03428586](#))

**Cuccione E**, Chhour P, Si-Mohamed S, **Dumot C**, Kim J, Hubert V, Da Silva C, Vandamme M, Chereul E, Balegamire J, Chevalier Y, Berthezene Y, Bousset L, Douek P, Cormode D, **Wuart M**. Multicolor spectral photon counting CT monitors and quantifies therapeutic cells and their encapsulating scaffold in a model of brain damage. *NanoTheranostics* 2020;4(3):129-141. ([hal-02841219](#))

**Basalay MV\***, **Wuart M\***, Chauveau F, **Dumot C**, Leon C, Amaz C, Bolbos R, Cash D, Kim E, Mechtouff L, Cho TH, Nighoghossian N, Davidson SM, Ovize M, Yellon DM. Neuroprotection by remote ischemic conditioning in the

setting of acute ischemic stroke: a preclinical two-centre study. *Sci Rep* 2020 Oct 9;10(1):16874. \*co-first authors ([hal-02964076](#))

Debatisse J, Eker O, Wateau O, Cho TH, **Wuart M**, Ramonet D, Costes N, Mérida I, Léon C, Dia M, Paillard M, Confais J, Rossetti F, Langlois JB, Troalen T, Iecker T, Le Bars D, Lancelot S, Bouchier B, Lukaszewicz AC, Oudotte A, Nighoghossian N, Ovize M, Contamin H, Lux F, Tillement O, Canet-Soulas E. PET-MRI nanoparticles imaging of blood-brain barrier damage and modulation after stroke reperfusion. *Brain Communications* 2020, fcaa193 ([hal-03060618](#))

**Hubert V**, **Dumot C**, **Ong E**, Amaz C, Canet-Soulas E, Chauveau F, **Wuart M**. MRI coupled with clinically-applicable iron oxide nanoparticles reveals choroid plexus involvement in a murine model of neuroinflammation. *Sci Rep*. 2019 Jul 11;9(1):10046 ([hal-02397061](#))

**Cuccione E**, Versace A, Cho TH, Carone D, Berner LP, **Ong E**, Rousseau D, Cai R, Monza L, Ferrarese C, Sganzerla EP, Berthezene Y, Nighoghossian N, **Wuart M**, Beretta S, Chauveau F. Multi-site laser Doppler flowmetry for assessing collateral flow in experimental ischemic stroke: Validation of outcome prediction with acute MRI. *J Cereb Blood Flow Metab* 2017;37(6):2159-2170 ([hal-02308993](#))

Di Cataldo V, Geloën A, Langlois JB, Chauveau F, Theze B, **Hubert V**, **Wuart M**, Chirico EN, Rieusset J, Vidal H, Pialoux V, Canet-Soulas E: Exercise Does Not Protect against Peripheral and Central Effects of a High Cholesterol Diet Given Ad libitum in Old ApoE<sup>-/-</sup> Mice. *Front Physiol* 2016, 7:453. ([hal-01883954](#))

Tamion A, Hillenkamp M, Hillion A, Maraloiu VA, Vlaicu ID, Stefan M, Ghica D, **Rositi H**, Chauveau F, Blanchin MG, **Wuart M**, Dupuis V: Ferritin surplus in mouse spleen 14 months after intravenous injection of iron oxide nanoparticles at clinical dose, *Nano Research* 2016, 9:2398-2410 ([hal-02289463](#))

Berner LP, Cho TH, Haesebaert J, Bouvier J, **Wuart M**, Hjort N, Klaerke Mikkelsen I, Derex L, Thomalla G, Pedraza S, Ostergaard L, Baron JC, Nighoghossian N, Berthezene Y: MRI Assessment of Ischemic Lesion Evolution within White and Gray Matter. *Cerebrovasc Dis* 2016, 41:291-297 ([hal-03996512](#))

Frindel C, Rouanet A, Giacalone M, Cho TH, Ostergaard L, Fiehler J, Pedraza S, Baron JC, **Wuart M**, Berthezene Y, Nighoghossian N, Rousseau D: Validity of shape as a predictive biomarker of final infarct volume in acute ischemic stroke. *Stroke* 2015, 46:976-981 ([hal-01131822](#))

## Publications de synthèse

**Wuart M**, **Tavakoli C**, **Hubert V**, Hristovska I, **Dumot C**, Parola S, Lerouge F, Chauveau F, Canet-Soulas E, Pascual O, Cormode D, Brun E, Elleaume H. Use of metal-based contrast agents for in vivo MR and CT imaging of phagocytic cells in neurological pathologies. *J of Neurosci Methods* 2023; 383: 109729. ([hal-03865234](#))

Wachsmuth L, Mensen A, Barca C, **Wuart M**, Tristão-Pereira C, Busato A, Waiczies S, Himmelreich U, Millward JM, Reimann HM, Jelescu I, Marzola P, Pradier B, Viola A, Faber C. Contribution of preclinical MRI to responsible animal research: living up to the 3R principle. *MAGMA*, 2021;34(4):469-474. ([hal-03264434](#))

**Hubert V**, Chauveau F, **Dumot C**, **Ong E**, Berner LP, Canet-Soulas E, Ghersi-Egea JF, **Wuart M**. Clinical Imaging of Choroid Plexus in Health and in Brain Disorders: A Mini-Review. *Front Mol Neurosci*. 2019; 12:34. ([hal-02195240](#))

Brisset JC, Gazeau F, Corot C, Nighoghossian N, Berthezene Y, Canet-Soulas E, **Wuart M**. INFLAM – INFLAMMation in Brain and Vessels with Iron Nanoparticles and Cell Trafficking. *Innovation and Research in BioMedical engineering (IRBM)*, TecSan review, Elsevier Masson, 2018, 39 (2), pp.93–102 ([hal-02626355](#))

Davidson SM, Arjun S, Basalay MV, Bell RM, Bromage DI, Botker HE, Carr RD, Cunningham J, Ghosh AK, Heusch G, Ibanez B, Kleinbongard P, Lecour S, Maddock H, Ovize M, Walker M, **Wuart M**, Yellon DM. The 10th Biennial Hatter Cardiovascular Institute workshop: cellular protection—evaluating new directions in the setting of myocardial infarction, ischaemic stroke, and cardio-oncology. *Basic Res Cardiol* 2018, 113:43 ([hal-02397066](#))

Albers J, Pacile S, Markus MA, **Wiert M**, Vande Velde G, Tromba G, Dullin C. X-ray-Based 3D Virtual Histology—Adding the Next Dimension to Histological Analysis. *Mol Imaging Biol* 2018, 20:732–741 ([hal-02397068](#))

### **Productions de science ouverte**

Chalet et al 2023 : Data set sur PRIMatE Data Exchange ([PRIME-RE](#)) (accessible sur demande)

**Dumot et al** 2022 : Données utilisées pour l'analyse statistique (FigShare)  
<https://figshare.com/s/15af2a099076389d2a5e>

**Dumot et al** 2022 : Data set : DOI [10.18112/openneuro.ds004632.v1.0.1](https://doi.org/10.18112/openneuro.ds004632.v1.0.1) (OpenNeuro, Accession Number ds004632)

**Hubert V** et al 2021 : Données utilisées pour l'analyse statistique (FigShare) DOI [10.6084/m9.figshare.13046291](https://doi.org/10.6084/m9.figshare.13046291)

Chourrout M et al. 2021 : Pipeline de traitement d'image (Zenodo) A Fiji pipeline to segment 3D objects and retrieve shape parameters in biomedical images. DOI [10.5281/zenodo.4584753](https://doi.org/10.5281/zenodo.4584753)

**Basalay** et al 2020 : Données utilisées pour l'analyse statistique (FigShare) DOI [10.5522/04/10529867.v1](https://doi.org/10.5522/04/10529867.v1)