

Pr Nathan MEWTON, (MD, PhD)



- +10 years clinical experience in heart failure, general and intensive care cardiology
- Non-invasive cardiac magnetic resonance imaging sub-speciality
- Team manager of a clinical research department in cardiovascular disease
- Principal investigator or sub-investigator in +100 clinical research projects with + 130 publications referenced in PubMed
- Rigorous, devoted, passionate, perseverant and strong institutional commitment
- Areas of expertise: heart failure, ischemia-reperfusion, microvascular obstruction, CMR, cardio-renal metabolism

PERSONAL INFORMATION

Date of birth: 12 octobre 1978
Site of birth: Aix-en-Provence (France)
Citizenship : French
Married – 4 children
Bilingual : French/English

CURRENT HOME ADDRESS

20 rue Chambovet
69003 LYON
FRANCE

CURRENT POSITION STATUS

Senior Cardiologist, Consultant, no RPPS: 10004041603, in the Heart Failure Unit since 2015, Head of Department: Dr. Laurent SEBBAG

Professeur des Universités-Praticien Hospitalier (Professor in Medicine) Université Claude Bernard Lyon 1, Appointed in September 2018, Scientific and Medical Manager of the Centre d'Investigation Clinique (Clinical Investigation Center) – Head of Department : Pr Michel OVIZE

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EDUCATION

Baccalauréat Série S (Highschool) – Biologie (Mention TB) – Académie Aix-Marseille (1995), France.
Medical School: Université de la Méditerranée - Académie Aix-Marseille (1996-2001)

DEGREES

- 2001 Concours d'Internat (Residency Exam) :
- Université de la Méditerranée – Académie Aix-Marseille, France
- 2003 DIU d'interprétation et de lecture critique d'articles (University degree in Critical Reading of
the Epidemiologic Literature) – Université Claude Bernard – Lyon 1, France
- 2005 Master M2 Recherche (Master in Science) Ingénierie Bio-médicale (Biomedical Engineering)
– Université Claude Bernard – Lyon 1, France
- 2006 DIU d'Echocardiographie (University degree in Clinical Echocardiography)
- Université Claude Bernard – Lyon 1, France
- 2006 Medical Degree
Specialization Degree in Cardiology – Université Claude Bernard – Lyon 1, France
Board certification in Cardiology
- 2006-2008 DIU d'Imagerie Cardiovasculaire Non Invasive (University degree in Non-invasive cardiac
imaging)
Université Claude Bernard – Lyon 1, France
- 2006-2009 PhD degree of Université Claude Bernard Lyon 1, France
Imagerie Cardiovasculaire par IRM à la Phase Aiguë de l'Infarctus
Thesis defense and obtention 22/12/2009
Ecole Doctorale Interdisciplinaire Sciences - Santé
- 2010-2012- Post-Doctoral Research Fellowship – Johns Hopkins Hospital
Cardiac Imaging Department– Chief of staff: Joao AC Lima
Division of Cardiology
Department of Medicine
600 N. Wolfe Street/Blalock 524
Baltimore, Maryland 21287-0409, USA
- 2013 University degree in Pedagogy - Université Claude Bernard Lyon 1
- 2014 Research and GCP training Medical Degree - Université Diderot, Paris VII
- 2018-2019 Post-graduate Course in Heart Failure from the ESC, University of Zurich (Graduation 2019)

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Fellowship/membership in scientific groups and societies

- Professional Member of the French Society of Cardiology
- Professional Member of the European Society of Cardiology
- Member of the Working Group Cellular Biology of the Heart of the European Society of Cardiology
- Board Member and past secretary of the Cardiovascular Research group of the French Society of Cardiology
- Board Member of the Heart Failure Group of French Society of Cardiology since 2018
- Member of the Heart Failure Association of the ESC Gold Membership since 2019

PROFESSIONAL RECORDS

January 2012- September 2014: Senior Staff, Physician in the Clinical Investigation Center (Praticien Hospitalier 100%) Hôpital Cardiovasculaire Louis Pradel, Lyon ; Clinical Research Department (Head of Department Pr. Ovize)

November 2008-October 2009 :

Hôpital Cardiovasculaire Louis Pradel, Lyon ; Clinical Research Department (Head of Department Pr.Ovize)

November 2006-October 2008: Chef de Clinique – Assistant. (Cardiac Intensive Care Fellow-Assistant Professor Attending Physician).

Unité de Soins Intensifs Cardiologiques, Hôpital Cardiovasculaire Louis Pradel, Lyon ; Head of Department : *Pr. Gilbert Kirkorian.*

Cardiology Residency

- May 2006-October 2006: Echocardiography Laboratory, Hôpital Cardiovasculaire Louis Pradel, Lyon ; Head of Department: *Pr. Geneviève Derumeaux.*
- November 2005-April 2006 : Cardiac Catheterization Laboratory, Hôpital Cardiovasculaire Louis Pradel, Lyon ; Head of Department: *Pr. Gérard Finet.*
- May 2004-October 2004: Cardiac Intensive Care, Hôpital Cardiovasculaire Louis Pradel, Lyon; Head of Department: *Pr. Paul Touboul.*
- November 2003-April 2004: Cardiac Intensive Care, Hôpital Saint Luc Saint Joseph, Lyon; Head of Department: *Dr Michel Lopez.*
- May 2003-October 2003: Medical Critical Care, Centre Hospitalier Lyon Sud, Pierre-Bénite; Head of Department: *Pr. Gérard Fournier.*
- November 2002-April 2003: Clinical Cardiology, Hôpital Cardiovasculaire Louis Pradel, Lyon; Head of Department: *Pr. Paul Touboul.*
- May 2002-October 2002: Surgical Intensive Care, Pavillon G Hôpital Edouard Herriot, Lyon; Head of Department: *Pr. Paul Petit.*
- November 2001-April 2002 : Clinical Cardiology, Hôpital Cardiovasculaire Louis Pradel, Lyon ; Head of Department: *Pr. Gilbert Kirkorian.*

Research Master

- November 2004-October 2005: Centre de Recherche et d'Applications en Traitement de l'Image et du Signal (CREATIS), Unité Mixte de Recherche-CNRS 5515, INSERM 630, 69394 Lyon ; Directeur de recherche : *Dr. Pierre Croisille.*

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Principal PubMed Original PUBLICATIONS

136 publications in PubMed, H-index=26, SIGAPS 2015-2020=1230, Research Gate Score=46.8

1. **Mewton N**, Croisille P, Revel D, Weber O, Higgins CB, Saeed M. Left ventricular postmyocardial infarction remodeling studied by combining MR-tagging with delayed MR contrast enhancement. *Invest Radiol*. 2008;43(4):219-28.
2. Piot C, Croisille P, Staat P, Thibault H, Rioufol G, **Mewton N**, Elbelghiti R, Cung TT, Bonnefoy E, Angoulvant D, Macia C, Raczka F, Sportouch C, Gahide G, Finet G, André-Fouët X, Revel D, Kirkorian G, Monassier JP, Derumeaux G, Ovize M. Effect of Cyclosporin on Reperfusion Injury in Acute Myocardial Infarction. *N Engl J Med* 2008;359:473-81.
3. **Mewton N**, Bonnefoy E, Revel D, Ovize M, Kirkorian G, Croisille P. Presence and Extent Of MRI Microvascular Obstruction in Reperfused Non ST-Elevated Myocardial Infarction And Correlation With Infarct Size and Myocardial Enzymes Release. *Cardiology*. 2008;113(1):50-58.
4. Vicente J, **Mewton N**, Croisille P, Staat P, Bonnefoy-Cudraz E, Ovize M, Revel D. Comparison of the angiographic myocardial blush grade with delayed-enhanced cardiac magnetic resonance for the assessment of microvascular obstruction in acute myocardial infarctions. *Catheter Cardiovasc Interv*. 2009;74(7):1000-7. (*First co-authorship*)
5. **Mewton N**, Revel D, Bonnefoy E, Ovize M, Croisille P. Comparison of visual scoring and quantitative planimetry methods for estimation of global infarct size on delayed enhanced cardiac MRI and validation with myocardial enzymes. *Eur J Radiol*. 2010; 55(12):1200-5.
6. **Mewton N**, Croisille P, Gahide G, Rioufol G, Bonnefoy E, Sanchez I, Cung TT, Sportouch C, Angoulvant D, Finet G, André-Fouët X, Derumeaux G, Piot C, Vernhet H, Revel D, Ovize M. Effect of cyclosporine on left ventricular remodeling after reperfused myocardial infarction. *J Am Coll Cardiol*. 2010;55(12):1200-5.
7. **Mewton N**, Rapacchi S, Augeul L, Ferrera R, Loufouat J, Bousset L, Micolich A, Rioufol G, Revel D, Ovize M, Croisille P. Determination of the myocardial area at risk with pre- versus post-reperfusion imaging techniques in the pig model. *Basic Res Cardiol*. 2011 Nov;106(6):1247-57.
8. Viallon M, Jacquier A, Rotaru C, Delattre BM, **Mewton N**, Vincent F, Croisille P. Head-to-head comparison of eight late gadolinium-enhanced cardiac MR (LGE CMR) sequences at 1.5 tesla: from bench to bedside. *J Magn Reson Imaging*. 2011 Dec;34(6):328-39.
9. Viallon M, **Mewton N**, Thuny F, Guehring J, O'Donnell T, Stemmer A, Bi X, Rappachi S, Zuehlsdorff S, Revel D, Croisille P. T2 Weighted Cardiac Magnetic Resonance Identification of the Myocardial Area at Risk in Reperfused Acute Myocardial Infarction: Observer Performance and Quantitative Analysis Comparisons of State-of-the-Art Dark Blood and Bright Blood T2 weighted Sequences ». *J Magn Reson Imaging*. 2012 Feb;35(2):1374-87.

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10. Thuny F, Lairez O, Roubille F, **Mewton N**, Rioufol G, Sportouch C, Ingrid Sanchez I, Bergerot C, Thibault H, Tri Cung T, Finet G, Laurent Argaud L, Revel D, Derumeaux G, Bonnefoy-Cudraz E, Elbaz M, Piot C, Ovize M, Croisille P. Postconditioning Reduces Infarct Size and Edema in Patients with ST-Elevation Myocardial Infarction J Am Coll Cardiol. 2012 Jun 12;59(24):2175-81.
11. Roubille F, Lairez O, **Mewton N**, Rioufol G, Ranc S, Sanchez I, Cung TT, Elbaz M, Piot C, Ovize M. Cardioprotection by clopidogrel in acute ST-elevated myocardial infarction patients: a retrospective analysis. Basic Res Cardiol. 2012 Jul;107(4):275. doi: 10.1007/s00395-012-0275-3.
12. Chugh AR, Beache GM, Loughran JH, **Mewton N**, Elmore JB, Kajstura J, Pappas P, Tautoles A, Stoddard MF, Lima JA, Slaughter MS, Anversa P, Bolli R. Administration of cardiac stem cells in patients with ischemic cardiomyopathy: the SCIPIO trial: surgical aspects and interim analysis of myocardial function and viability by magnetic resonance. Circulation. 2012 Sep 11;126(11 Suppl 1):S54-64.
13. **Mewton N**, A. Opdahl, EY Choi, ALC. Almeida, N Kawel, CO Wu, GL. Burke, S. Liu, K. Liu, DA Bluemke, , JAC Lima, Left Ventricular Global Function Index By Magnetic Resonance Imaging- A Novel Marker for Assessment of Cardiac Performance for the Prediction Of Cardiovascular Events: The Multi-Ethnic Study of Atherosclerosis Hypertension. 2013 Apr;61(4):770-8.
14. Morillon-Lutun S, Maucourt-Boulch D, **Mewton N**, Farhat F, Bresson D, Girerd N, Desebbe O, Henaine R, Kirkorian G, Bonnefoy-Cudraz E. Therapeutic management changes and mortality rates over 30 years in ventricular septal rupture complicating acute myocardial infarction. Am J Cardiol. 2013 Nov 1;112(9):1273-8.
15. Paillard M, Tubbs E, Thiebaut PA, Gomez L, Fauconnier J, Da Silva CC, Teixeira G, **Mewton N**, Belaidi E, Durand A, Abrial M, Lacampagne A, Rieusset J, Ovize M. Depressing mitochondria-reticulum interactions protects cardiomyocytes from lethal hypoxia-reoxygenation injury. Circulation. 2013 Oct 1;128(14):1555-65.
16. **Mewton N**, Thibault H, Roubille F, Lairez O, Rioufol G, Sportouch C, Sanchez I, Bergerot C, Cung TT, Finet G, Angoulvant D, Revel D, Bonnefoy-Cudraz E, Elbaz M, Piot C, Sahraoui I, Croisille P, Ovize M. Postconditioning attenuates no-reflow in STEMI patients. Basic Res Cardiol. 2013;108(6):383.
17. Strauss DG, **Mewton N**, Verrier RL, Nearing BD, Marchlinski FE, Killian T, Moxley J, Tereshchenko LG, Wu KC, Winslow R, Cox C, Spooner PM, Lima JA. Screening entire health system ECG databases to identify patients at increased risk of death. Circ Arrhythm Electrophysiol. 2013 Dec;6(6):1156-62.
18. Bergerot C, **Mewton N**, Lacote-Roiron C, Ernande L, Ovize M, Croisille P, Thibault H, Derumeaux G. Influence of microvascular obstruction on regional myocardial deformation in the acute phase of myocardial infarction: a speckle-tracking echocardiography study. J Am Soc Echocardiogr. 2014 Jan;27(1):93-100.

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19. Tereshchenko LG, Rizzi P, **Mewton N**, Volpe GJ, Murthy S, Strauss DG, Liu CY, Marchlinski FE, Spooner P, Berger RD, Kellman P, Lima JA. Infiltrated atrial fat characterizes underlying atrial fibrillation substrate in patients at risk as defined by the ARIC atrial fibrillation risk score. *Int J Cardiol.* 2014 Mar 1;172(1):196-201.
20. Roubille F, **Mewton N**, Elbaz M, Roth O, Prunier F, Cung TT, et al. No post-conditioning in the human heart with thrombolysis in myocardial infarction flow 2-3 on admission. *Eur Heart J* 2014;35:1675-82.
21. Murthy S, Rizzi P, **Mewton N**, Strauss DG, Liu CY, Volpe GJ, et al. Number of P-wave fragmentations on P-SAECG correlates with infiltrated atrial fat. *Ann Noninvasive Electrocardiol* 2014;19:114-21.
22. Verdier-Watts F, Rioufol G, **Mewton N**, Sanchez I, Green L, Bonnefoy-Cudraz E, et al. Influence of arterial hypotension on fractional flow reserve measurements. *EuroIntervention* 2015. 11(4):416-20.
23. Ambale Venkatesh B, Volpe GJ, Donekal S, **Mewton N**, Liu CY, Shea S, et al. Association of longitudinal changes in left ventricular structure and function with myocardial fibrosis: the Multi-Ethnic Study of Atherosclerosis study. *Hypertension* 2014;64:508-15.
24. **Mewton N**, Dernis A, Bresson D, Zouaghi O, Croisille P, Flocard E, et al. Myocardial biomarkers and delayed enhanced cardiac magnetic resonance relationship in clinically suspected myocarditis and insight on clinical outcome. *J Cardiovasc Med (Hagerstown)* 2015 ; 16(10) :696-703.
25. Chiari P, Angoulvant D, **Mewton N**, Desebbe O, Obadia JF, Robin J, et al. Cyclosporine protects the heart during aortic valve surgery. *Anesthesiology* 2014;121:232-8.
26. Tiffany Win T, Ambale Venkatesh B, Volpe GJ, **Mewton N**, Rizzi P, Sharma RK, et al. Associations of electrocardiographic P-wave characteristics with left atrial function, and diffuse left ventricular fibrosis defined by cardiac magnetic resonance: The PRIMERI Study. *Heart Rhythm* 2015;12:155-62.
27. Touboul C, Angoulvant D, **Mewton N**, Ivanes F, Muntean D, Prunier F, et al. Ischaemic postconditioning reduces infarct size: systematic review and meta-analysis of randomized controlled trials. *Arch Cardiovasc Dis* 2015;108:39-49.
28. Obadia JF, Armoiry X, Lung B, Lefèvre T, **Mewton N**, Messika-Zeitoun D, et al. The MITRA-FR study: design and rationale of a randomised study of percutaneous mitral valve repair compared with optimal medical management alone for severe secondary mitral regurgitation. *EuroIntervention* 2015;10:1354-60.

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29. Nighoghossian N, Berthezène Y, Mechtouff L, Derex L, Cho TH, Ritzenthaler T, Rheims S, Chauveau F, Béjot Y, Jacquin A, Giroud M, Ricolfi F, Philippeau F, Lamy C, Turc G, Bodiguel E, Domigo V, Guiraud V, Mas JL, Oppenheim C, Amarenco P, Cakmak S, Sevin-Allouet M, Guillon B, Desal H, Hosseini H, Sibon I, Mahagne MH, Ong E, **Mewton N**, Ovize M. Cyclosporine in acute ischemic stroke. *Neurology*. 2015 Jun 2;84(22):2216-23. doi: 10.1212/WNL.0000000000001639.
30. Génot N, **Mewton N**, Bresson D, Zouaghi O, Francois L, Delwarde B, et al. Bioelectrical impedance analysis for heart failure diagnosis in the ED. *Am J Emerg Med* 2015 ; 33(8) :1025-9.
31. **Mewton N**, Cung TT, Morel O, Cayla G, Bonnefoy-Cudraz E, Rioufol G, Angoulvant D, et al. Rationale and design of the Cyclosporine to ImpRove Clinical oUtcome in ST-elevation myocardial infarction patients (the CIRCUS trial). *Am Heart J*. 2015 Jun;169(6):758-766.e6.
32. Schaaf MJ, **Mewton N**, Rioufol G, Angoulvant D, Cayla G, Delarche N, et al. Pre-PCI angiographic TIMI flow in the culprit coronary artery influences infarct size and microvascular obstruction in STEMI patients. *J Cardiol*. 2015 Jun 24. pii: S0914-5087(15)00158-6.
33. Pichot S, **Mewton N**, Bejan-Angoulvant T, Roubille F, Rioufol G, Giraud C, Boussaha I, Lairez O, Elbaz M, Piot C, Angoulvant D, Ovize M. Influence of cardiovascular risk factors on infarct size and interaction with mechanical ischaemic postconditioning in ST-elevation myocardial infarction. *Open Heart*. 2015 Aug 6;2(1):e000175.
34. Cung TT, Morel O, Cayla G, (...) Derumeaux G, **Mewton N**, Ovize M. Cyclosporine before PCI in Patients with Acute Myocardial Infarction. *N Engl J Med*. 2015 Sep 10;373(11):1021-31.
35. Gheorghide M, Greene SJ, Butler J, Filippatos G, Lam CS, Maggioni AP, Ponikowski P, Shah SJ, Solomon SD, Kraigher-Krainer E, Samano ET, Müller K, Roessig L, Pieske B; SOCRATES-REDUCED Investigators and Coordinators. Effect of Vericiguat, a Soluble Guanylate Cyclase Stimulator, on Natriuretic Peptide Levels in Patients With Worsening Chronic Heart Failure and Reduced Ejection Fraction: The SOCRATES-REDUCED Randomized Trial. *JAMA*. 2015 Dec 1;314(21):2251-62. doi: 10.1001/jama.2015.15734.
36. El Khoury C, Bochaton T, Flocard E, Serre P, Tomasevic D, **Mewton N**, Bonnefoy-Cudraz E; Observatoire des Syndromes Coronaires Aigus dans RESCUE (OSCAR) Research Team. Five-year evolution of reperfusion strategies and early mortality in patients with ST-segment elevation myocardial infarction in France. *Eur Heart J Acute Cardiovasc Care*. 2015 Dec 17. pii: 2048872615623065.
37. Gjesdal O, Yoneyama K, **Mewton N**, Wu C, Gomes AS, Hundley G, Prince M, Shea S, Liu K, Bluemke DA, Lima JA. Reduced long axis strain is associated with heart failure and cardiovascular events in the multi-ethnic study of Atherosclerosis. *J Magn Reson Imaging*. 2016 Jan 5. doi: 10.1002/jmri.25135.

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38. **Mewton N**, Strauss DG, Rizzi P, Verrier RL, Liu CY, Tereshchenko LG, et al. Screening for Cardiac Magnetic Resonance Scar Features by 12-Lead ECG, in Patients with Preserved Ejection Fraction. *Ann Noninvasive Electrocardiol*. 2016; 21(1):49-59.
39. Belle L, Motreff P, Mangin L, Rangé G, Marcaggi X, Marie A, Ferrier N, Dubreuil O, Zémour G, Souteyrand G, Caussin C, Amabile N, Isaaz K, Dauphin R, Koning R, Robin C, Faurie B, Bonello L, Champin S, Delhaye C, Cuilleret F, **Mewton N**, Genty C, Viallon M, Bosson JL, Croisille P; MIMI Investigators*. Comparison of Immediate With Delayed Stenting Using the Minimalist Immediate Mechanical Intervention Approach in Acute ST-Segment-Elevation Myocardial Infarction: The MIMI Study. *Circ Cardiovasc Interv*. 2016 Mar;9(3):e003388. doi: 10.1161/CIRCINTERVENTIONS.115.003388.
40. Inoue YY, Ambale-Venkatesh B, **Mewton N**, Volpe GJ, Ohyama Y, Sharma RK, Wu CO, Liu CY, Bluemke DA, Soliman EZ, Lima JA, Ashikaga H. Electrocardiographic Impact of Myocardial Diffuse Fibrosis and Scar: MESA (Multi-Ethnic Study of Atherosclerosis). *Radiology*. 2017 Mar;282(3):690-698. doi: 10.1148/radiol.2016160816
41. Obadia JF, Messika-Zeitoun D, Leurent G, Iung B, Bonnet G, Piriou N, Lefèvre T, Piot C, Rouleau F, Carrié D, Nejjari M, Ohlmann P, Leclercq F, Saint Etienne C, Teiger E, Leroux L, Karam N, Michel N, Gilard M, Donal E, Trochu JN, Cormier B, Armoiry X, Boutitie F, Maucort-Boulch D, Barnel C, Samson G, Guerin P, Vahanian A, **Mewton N**; MITRA-FR Investigators. Percutaneous Repair or Medical Treatment for Secondary Mitral Regurgitation. *N Engl J Med*. 2018 Dec 13;379(24):2297-2306. doi: 10.1056/NEJMoa1805374.
42. Iung B, Armoiry X, Vahanian A, Boutitie F, **Mewton N**, Trochu JN, Lefèvre T, Messika-Zeitoun D, Guerin P, Cormier B, Brochet E, Thibault H, Himbert D, Thivolet S, Leurent G, Bonnet G, Donal E, Piriou N, Piot C, Habib G, Rouleau F, Carrié D, Nejjari M, Ohlmann P, Saint Etienne C, Leroux L, Gilard M, Samson G, Rioufol G, Maucort-Boulch D, Obadia JF; MITRA-FR Investigators. Percutaneous repair or medical treatment for secondary mitral regurgitation: outcomes at 2 years. *Eur J Heart Fail*. 2019 Dec;21(12):1619-1627. doi: 10.1002/ejhf.1616