Etienne Vachon-Presseau

CURRICULUM VITAE

Etienne Vachon-Presseau
21/11/2018

Coordinates

etienne.vachon.presseau@gmail.com

Interests and skills

My research aims at better understanding the brain mechanisms regulating chronic pain. I mainly used prospective brain imaging to determine the brain mechanisms making individuals vulnerable to transition from subacute to chronic pain, or to respond to a specific treatment. I am also interested in understanding how other factors ranging from stress, inflammation, sex, age, or personality and lifestyle can modify the neural networks determining how chronic pain and comorbid psychiatric conditions (i.e. anxiety and depression) are experienced by the patients.

Chronic pain
-Pain and comorbid psychiatric disorders
-Predisposition to chronic pain
-Chronic pain in the elderly with and without brain pathology
-Placebo response in chronic pain patients
-Stress in healthy individuals and chronic pain patients
-Predictive models

Multimodal neuroimaging

-Morphology from structural MRI
-Resting-state functional MRI for intrinsic connectivity analysis
-Diffusion imaging and white matter tractography
-Machine learning
-Softwares: SPM, FSL, Matlab.

Education

2019	**Tenure-track assistant professor Faculty of Dentistry and Faculty of Medicine department of anesthesiology** (starting in august)**,** McGill University
2013-2018	**Postdoc in physiology,** Supervisor : Apkar Vania Apkarian Northwestern University, Chicago, USA.

2013 **Postdoc in psychology** - 6 months**,**
Supervisor: Philip Jackson;
Laval University, Québec.

2007-2013 **PhD in psychology**,
Supervisor: Pierre Rainville;
Université de Montréal, Montréal.

2006-2007 **M.Sc. in psychology**,
Supervisiors: Jean-Paul Guillemot and Franco Lepore.
Université de Montréal, Montréal

2001-2005 **B.S. with honors in psychology**,
Honnors supervisor: André Achim.
Université du Québec à Montréal

Training awards

2016-2019 Scholarship from the Fond de Recherche du Québec - Santé (FRQS) to complete a postdoc fellow under the supervision of Apkar Vania Apkarian. (135 000 $ / 3 years).

2013-2016 Scholarship from the Canadian Institutes of Health Research (CIHR) to complete a postdoc fellow under the supervision of Apkar Vania Apkarian. (150 000 $ / 3 years).

2011-2012 Scholarship from the *Université de Montréal* to complete a PhD under the supervision of Pierre Rainville (12 000 / 1year).

2008-2011 Sholarship by the *Fonds de la recherche en santé du Québec (FRSQ)* to complete a PhD under the supervision of Pierre Rainville. (60 000 $ / 3 years) **(**Declined in 2008-2010 and accepted in 2011**)**.

2008-2010 Banting Scholarship by the Canadian Institutes of Health Research (CIHR) to complete a PhD under the supervision of Pierre Rainville. (70 000 $ / 2 years).

2006-2008 Scholarship by the Natural Sciences and Engineering Research Council of Canada (NSERC) to complete a master degree (Msc) under the supervision of Franco Lepore and Jean-Paul Guillemot. (35 000 $ / 2 years).

2006-2008 Scholarship by the *Fonds de recherche sur la nature et les technologies (FQRNT)* to complete a master degree (Msc) under the supervision of Franco Lepore and Jean-Paul Guillemot. (30 000 $ / 2 years) **(**Declined**)**.

Awards and Prizes

2007 Prize JANSSEN-ORTHO for the best oral presentation at the *16e Journée scientifique du Centre de Recherche en Neuropsychologie Et Cognition*. (500 $)

2010 Prize BRAIN VISION for the best poster presentation at the *18e Journée scientifique du Centre de Recherche en Neuropsychologie Et Cognition* (500 $).

2012 Travel award from Réseau québécois de recherche sur la douleur for attending Society for Neuroscience in 2012 (1000 $).

2013 Prize BRUNO CARDU for the best scientific paper (Brain, 2013) at the *18e Journée scientifique du Centre de Recherche en Neuropsychologie Et Cognition* (500 $).

2016 Travel award from the International Association for the Study of Pain (IASP, Yokohama, Japan, 1000 $).

2018 Poster selected as one among six selected hot topics (selected over 3000 posters; IASP, Boston, USA).

Grants

2013-2018 Beyond pain subjectivity: A neuroimaging investigation of multidimensional pain-responses and their related function; Operating grant from the Canadian Institutes of Health Research (CIHR).

Role: Co-Investigator
Principal Investigator : Pierre Rainville;
Amount : 689 014 $

Teaching

2008-2010 Teacher Assistant in History of psychology (Université de Montréal).

2011 Invited teacher in Pain and orofacial dysfunction (Université de Montréal).

2013 Invited teacher in Human neuroanatomy (Université du Québec à Trois-Rivières).

2016 Invited teacher in Brain biomarkers (Douglas Hospital, McGill University)

2017 Invited teacher in Physiologie neuromusculaire (Université de Montréal)

2018 Invited teacher in Current Topics in Neurosciences (McGill University)

Peer review activities

Journals: Arthritis and Rheumatism; Brain; Brain and Behavior; Cerebral Cortex; European Journal of Pain; Experimental Brain Research; Frontiers in Behavioral Neuroscience (2x); Journal of Neuroscience Methods; Journal of Traumatic Stress; NeuroImage; Pain (8x); Psychoneuroendocrinology; The journal of Pain (7x); The Open Pain Journal; The Spanish journal of psychology; Yonsei Journal of Medicine.

Abstracts: Human Brain Mapping 2013

Invited speaker

- Topical Workshop Speaker: International Association for Study of Pain (IASP); Boston, USA (2018).

-Conférences NeuroQAM, Montréal, Canada (2018)

-Nanosymposium at the Society for Neuroscience; Washington, USA (2017).

-Congrès annuel société québécoise de douleur, Boucherville, Canada (2017).

-The Douglas Hospital Research Centre, McGill University, Montréal, Canada (2017).

-Pain Rounds Allan Edwards, McGill University, Montréal, Canada (2017).

-Centre de Recherche en Neuropsychologie Et Cognition; Université de Montréal, Montréal, Canada (2016).

-Nanosymposium at the Society for Neuroscience; San Diego, USA (2016).

-Brain Imaging Centre, Douglas, McGill University; Montréal, Canada (2016).

-Canadien Pain Society; Charlottetown, PEI, Canada (2015).

- Topical Workshop Speaker: International Association for Study of Pain (IASP); Buenos Aires, Argentina (2014).

- Consortium d'imagerie en neurosciences et santé mentale de Québec; Québec, Canada (2013).

Etienne Vachon-Presseau

List of publications

2018

Vachon-Presseau E, Berger SE, Abdullah TB, Huang L, Griffith JW, Schnitzer TJ, & Apkarian AV. (2018) Psychological and brain determinants of placebo pill response in chronic pain. *Nature Communications*.

Verfaillie S, Pichet Binette A, **Vachon-Presseau E**, Tabrizi S, Savard M, Bellec P, Ossenkoppele R, Scheltens P, van der Flier WM, Breitner JCS, Villeneuve S on behalf of the PREVENT-AD Research Group. Subjective cognitive decline is associated with altered posterior cingulate connectivity in elderly with a familial history of Alzheimer's Disease. *Biological Psychiatry CNNI*

Vogel JW, **Vachon-Presseau E**, Pichet Binette A, Tam A, Orban P, La Joie R, Savard M, Picard C, Poirier J, Bellec P, Breitner JC, & Villeneuve S. for the Alzheimer's Disease Neuroimaging Initiative & the PREVENT-AD Research Group. Proximity to parental symptom onset is associated with brain network abnormalities in sporadic Alzheimer's disease. *Brain*

Berger SE, **Vachon-Presseau E**, Abdullah TB, Baria,AT, Schnitzer TJ, & Apkarian AV. (2018) Hippocampal morphology dictates exaggerated memories of pain. *NeuroImage*. Feb 1; 166:86-98.

2017

Vachon-Presseau E. (2017) Effects of stress on the corticolimbic system: implications for chronic pain. *Prog Neuropsychopharmacol Biol Psychiatry* Oct 25 *S0278-5846(17)30598-5.*

Latimer M, Jackson PL, Eugène F, Macleod E, Hatfield T, **Vachon-Presseau E**, Michon PE, & Prkachin KM. (2017) Empathy in Pediatric Intensive Care Nurses Part 1: Behavioral and psychological correlates. *J Adv Nurs*. Nov;73(11):2686-2695.

Jackson PL, Latimer M, Eugène F, MacLeod E, Hatfield T, **Vachon-Presseau E**, Michon PE, & Prkachin KM. (2017) Empathy in Pediatric Intensive Care Nurses Part 2: Neural correlates. *J Adv Nurs*. Nov;73(11):2676-2685

2016

Vachon-Presseau E, Tétreault P, Petre B, Huang L, Berger S, Torbey S, Baria AT, Mansour AR, Hashmi JA, Griffith JW, Comasco E, Schnitzer TJ, Baliki MN, & Apkarian AV. (2016) Corticolimbic anatomical characteristics predetermine risk for chronic pain. *Brain,* Jul;139(Pt 7):1958-70

Vachon-Presseau E, Roy M, Woo CW, Kunz M, Jackson PL, Sullivan MJ, Wager TD, & Rainville P. (2016) The multi faces of pain: Specific effects of chronic pain on the brain regulation of facial expression. *Pain* Aug;157(8):1819-30.

Vachon-Presseau E, Centeno MV, Ren W, Berger SE, Tétreault P, Ghantous M, Baria A, Farmer M, Baliki MN, Schnitzer TJ, & Apkarian AV (2016) The Emotional Brain as a Predictor and Amplifier of Chronic Pain. *Journal of Dental Research* Jun;95(6):605-12

Tétreault P, Mansour A, **Vachon-Presseau E**, Schnitzer TJ, Apkarian AV, & Baliki MN. (2016) Brain connectivity predicts placebo response across chronic pain clinical trials. *PLOS Biology* Oct 27;14(10):e1002570.

Mansour A, Baliki MN, Baria AT, Tetreault P, **Vachon-Presseau E**, Chang PC, Huang L, & Apkarian AV. (2016) Hub disruption of brain functional networks: a hallmark of chronic pain. *Sci Rep.* 2016 Oct 11;6:34853.

Taschereau-Dumouchel V, Hétu S, Michon PE, **Vachon-Presseau E**, Massicotte E, de Beaumont L, Fecteau S, Poirier J, Mercier C, Chagnon Y, & Jackson PL. (2016) BDNF Val66Met Polymorphism influences Visuomotor Associative Learning and the Sensitivity to Action Observation. *Sci Rep.* 2016 Oct 5;6:34907.

2014

Marcoux LA, Michon PE, Lemelin S, Voisin JA, **Vachon-Presseau** E, & Jackson PL. (2014) Feeling but not caring: Empathic alteration in narcissistic men with high psychopathic traits. *Psychiatry Research* Dec 30;224(3):341-8.

Khatibi A, **Vachon-Presseau** E, Schrooten M, Vlaeyen J, & Rainville P. (2014) Attention effects on vicarious modulation of nociception and pain. *Pain* Oct;155(10):2033-9.

2013

Vachon-Presseau E, Roy M, Martel MO, Caron E, Marin MF, Chen J, Albouy G, Plante I, Sullivan MJ, Lupien SJ, & Rainville P. (2013) The stress model of chronic pain: evidence from basal cortisol and hippocampal structure and function in humans *Brain* 136 (Pt 3), 815-27.

Vachon-Presseau E, Martel MO, Roy M, Caron E, Albouy G, Marin MF, Plante I, Sullivan MJ, Lupien SJ, & Rainville P. (2013) Acute stress contributes to individual differences in pain-related brain activity in healthy and chronic pain patients. *The Journal of Neuroscience* Apr 17; 33 (16), 6826-6833.

Vachon-Presseau E, Roy M, Martel MO, Albouy G, Sullivan MJ, Jackson PL, & Rainville P. (2013) The two sides of pain communication: effects of pain expressiveness on vicarious brain responses revealed in chronic back pain patients. *The journal of pain* Nov;14(11):1407-15.

Marcoux LA, Michon PE, Voisin JI, Lemelin S, **Vachon-Presseau** E, & Jackson PL. (2013) The modulation of somatosensory resonance by psychopathic traits and empathy. *Frontiers in Human Neuroscience* Jun (19), 7:274.

2012

Vachon-Presseau E, Roy M, Martel MO, Albouy G, Chen J, Budell L, Sullivan MJ, Jackson PL, & Rainville P. (2012) Brain processing of sensory and emotional-communicative information from which vicarious pain is perceived. *NeuroImage* (63), 1, 54-62.

Mailhot JP, **Vachon-Presseau E,** Jackson PL, & Rainville P. (2012) Empathy traits modulate vicarious effects of dynamic pain expressions on spinal nociception, facial responses and acute pain. *European Journal of Neuroscience* (35) 2 271-278.

2011

Vachon-Presseau E, Martel MO, Roy M, Caron E, Jackson P, & Rainville P. (2011) The multilevel organization of vicarious pain responses: effects of pain cues and empathy trait on spinal nociception and acute pain. *Pain* (152) : 1525-1531.

Kunz M, Chen J, Lautenbacher S, **Vachon-Presseau E,** & Rainville P. (2011) Cerebral regulation of facial expression of pain. *The Journal of Neuroscience (*31) : 8730-8738.

2010

Martin A, **Vachon-Presseau E,** Pageau C, Lepore F, & Guillemot JP. (2010) Coding sound direction in noisy environment in the superior colliculus of the rat. *Neuroscience letters* 470 (1) 28-32.

2009

Vachon-Presseau E, Martin A, Lepore F, & Guillemot JP. (2009) Development of the Representation of Auditory Space in the Superior Colliculus of the Rat. *European Journal of Neuroscience* (29) 3 652-660.

Vachon-Presseau E, Achim A, & Benoit-Lajoie A. (2009) Direction of SMR and Beta Change with Attention in Adults. *Journal of Neurotherapy* (13) 1 22-29.

2008

Vachon-Presseau E, & Henry L. (2008) The Influences of Associative Cortices on Cross Modal Integration in the Superior Colliculus. *The Journal of Neuroscience* (28) 1787-1788.

Book chapters

Apkarian AV, Baliki MN, Farmer MA, Tétreault P, & **Vachon-Presseau E.** (2015) Pain: Acute and Chronic in Brain Mapping: An Encyclopedic Reference, Elsevier.

Submitted

Silvestrini N, Chen JI, Piché M, Roy M, **Vachon-Presseau E**, Woo CW, Wager T, & Rainville P. After-effects of cognitive control on pain in the cingulate cortex.

Vachon-Presseau E., Berger SE, Abdullah TB, Griffith JW, Schnitzer TJ, & Apkarian AV. Identification of traits and functional connectivity-based neuropsychotypes of chronic pain (https://www.biorxiv.org/content/early/2018/09/19/421438).

Selected Poster Presentations

Vachon-Presseau E, Abdullah, T., Berger, S.E., Schnitzer, T.J., & Apkarian, A.V. (2018) Predicting placebo pills response in randomized controlled trials. Society for Neuroscience (San Diego, USA).

Vachon-Presseau E., Baria A., Pichet-Binette A., Benziger T., Morris J.C., Bateman R.J., Breitner J.C., Poirier J., Gonneaud J., & Villeneuve S. (2018) The preclinical phase of autosomal dominant genetic form of Alzheimer's disease is characterized by accelerated brain aging that is independent from amyloid pathology. Society for Neuroscience (San Diego, USA).

Vachon-Presseau E, Berger, S.E., Abdullah, T., Schnitzer, T.J., & Apkarian, A.V. (2018) Determining Biotypes of Chronic Pain Patients from Brain Feature Predictive of Psychological Factors and Personality Traits. International Association for the Study of Pain (Boston, USA). PFR252

Vachon-Presseau E., Meyer PF, Pichet-Binette A, Rosa-Neto P, Poirier J, Breitner JCS, & Villeneuve S, PREVENT-AD Research Group (2017). Assessing the impact of inflammation on limbic circuitry and its role in depression in older adults. Alzheimer's Association International Conference (London, UK), P4-566.

Vachon-Presseau E., Berger S.E., Baria A., Abdullah T., Schnitzer T.J., & Apkarian A.V. (2016). The neuropsychological mechanisms of memory bias in chronic pain. Society for Neuroscience (San Diego, USA), 243.26/FF2.

Vachon-Presseau E., Berger S.E., Aubdullah T., Schnitzer T.J., & Apkarian A.V. (2016). Functional Connectivity Between Frontal and Sensorimotor Networks Predispose to Placebo Response in Chronic Back Pain Patients. International Association for the Study of Pain (Yokohama, Japan). PF0064.

Vachon-Presseau E., Berger S.E., Tétreault P., Apkarian A.V., & Baliki M.N (2015). Reliability of structural connectivity hubs in human brain network. Society for Neuroscience (Chicago, USA), 95.13/BB88.

Vachon-Presseau E., Baliki M.N, Tétreault P., Schnitzer T.J. & Apkarian A.V. (2014). Structural and functional network topologies of the limbic system shape chronic pain. Society for Neuroscience (Washington, USA), 243.26/FF2.

Vachon-Presseau E., Baliki M.N, Tétreault P., Schnitzer T.J., & Apkarian A.V. (2014). Corticolimbic functional network properties predisposes back pain patients to chronic pain. International Association for the Study of Pain (Buenos Aires, Argentina). PW223.

Vachon-Presseau E., Baliki M.N, Tétreault P., Schnitzer T.J., & Apkarian, A.V. (2014). Amygdala and hippocampal volumes predispose to chronic pain. International Association for the Study of Pain (Buenos Aires, Argentina). PH198.

Vachon-Presseau E., Baliki M.N., Huang L., & Apkarian A.V. (2014). Amygdala and hippocampal volumes predispose the transition from subacute to chronic pain. Human Brain Mapping (Hamburg, Germany). 4106.

Vachon-Presseau E., Roy M., Kunz M., Martel M.O., Sullivan M.J., Wager TD., Jackson P.L., & Rainville P. (2013) Inverted medial prefrontal response during pain facial expression in chronic pain patients. Society for Neuroscience (San Diego, USA). 268.07/VV12.

Vachon-Presseau E., Martel M.O., Roy M., Marin M.F., Caron E., Chen J., Albouy G., Sullivan M.J., Lupien S.J. & Rainville P. (2013) Acute stress contributes to individual differences in pain-related brain activity in healthy and chronic pain patients. Cognitive Neuroscience Society (San Francisco, USA). H117.

Vachon-Presseau E., Martel M.O., Roy M., Marin M.F., Caron E., Chen J., Albouy G., Sullivan M.J., Lupien S.J. & Rainville P. (2012) Increased stress hormones are associated with functional changes in the limbic system in chronic back pain. Society for Neuroscience (New-Orlean, USA). 181.08/II20.

Vachon-Presseau E., Martel M.O., Roy M., Budell L., Sullivan M.J, Jackson P.L, & Rainville P (2011). Pain behaviors in patients with chronic back pain predict their perception of pain in others: an fMRI study. Society for Neuroscience (Washington, USA). SfN abstract 382.07/QQ32.

Vachon-Presseau E., Roy M., Martel M.O., Budell L., Chen J., Albouy G., Caron E., Sullivan M.J, Jackson P.L, & Rainville P (2011)**.** The neural correlates of pain perceived through sensory or emotive cues. International Brain Research Organization (Florence, Italy). IBRO abstract C222.

Vachon-Presseau E., Martel M.O., Roy M., Caron E., Jackson P., & Rainville, P. (2010). Vicarious pain is multi-level: Determining the influence of empathy traits on spinal nociception, autonomic responses and acute pain. Society for Neuroscience (San Diego, USA). SfN abstract 79.12/TT06.

Vachon-Presseau E., Martel M.O., Roy M., Sullivan M.J., Jackson P., & Rainville P. (2010). Effects of chronic pain and pain behaviors on the sensitivity to the pain of others. Cognitive Neuroscience Society. (Montréal, Canada). CNS abstract A12.

Vachon-Presseau E., Martel M.O., Roy M., Kunz M., Jackson P., & Rainville P. (2009). The observation of pain in others modulates spinal nociception and pain unpleasantness. Society for Neuroscience (Chicago, USA). SfN abstract 653.12/Z10.

Vachon-Presseau E., Martin A., Prévost F., Robert N., Tremblay M-E., Guillemot FY., Lepore F. & Guillemot J-P. (2007) Development of the representation of auditory space in the superior colliculus. Society for Neuroscience (San Diego, USA). SfN abstract 103073.