

Publications

- **Peer Reviewed Publications in print or other media**

1. Meisler DM, Tomsak RL, **Khoury S**, Hanson MR, Schwab IR, Ransohoff RM. Anterior uveitis and multiple sclerosis. *Cleve Clin J Med* 1989;56(5):535-538.
2. Santos, LM, Lider O, Audette J, **Khoury SJ**, Weiner HL. Characterization of immunomodulatory properties and accessory cell function of small intestinal epithelial cells. *Cell Immunol* 1990;127(1):26-34.
3. **Khoury SJ**, Lider O, Al-Sabbagh A, Weiner HL. Suppression of experimental autoimmune encephalomyelitis by oral administration of myelin basic protein. III. Synergistic effect of lipopolysaccharide. *Cell Immunol* 1990;131(2):302-310. doi: 10.1016/0008-8749(90)90256-Q
4. Sayegh MH, **Khoury SJ**, Hancock WW, Weiner HL, Carpenter CB. Induction of immunity and oral tolerance with polymorphic class II major histocompatibility complex allopeptides in the rat. *Proc Natl Acad Sci USA* 1992;89(16):7762-7766. PMC49791
5. **Khoury SJ**, Hancock WW, Weiner HL. Oral tolerance to myelin basic protein and natural recovery from experimental autoimmune encephalomyelitis are associated with downregulation of inflammatory cytokines and differential upregulation of transforming growth factor beta, interleukin 4, and prostaglandin E expression in the brain. *J Exp Med* 1992;176(5):1355-1364.
6. Weiner HL, Mackin GA, Matsui M, Orav EJ, **Khoury SJ**, Dawson DM, Hafler DA. Double-blind pilot trial of oral tolerization with myelin antigens in multiple sclerosis. *Science* 1993;259(5099):1321-1324.
7. **Khoury SJ**, Sayegh MH, Hancock WW, Gallon L, Carpenter CB, Weiner HL. Acquired tolerance to experimental autoimmune encephalomyelitis by intrathymic injection of myelin basic protein or its major encephalitogenic peptide. *J Exp Med* 1993;178(2):559-566.
8. Hancock WW, **Khoury SJ**, Carpenter CB, Sayegh MH. Differential effects of oral versus intrathymic administration of polymorphic major histocompatibility complex class II peptides on mononuclear and endothelial cell activation and cytokine expression during a delayed-type hypersensitivity response. *Am J Pathol* 1994;144(6):1149-1158. PMC1887471
9. **Khoury SJ**, Weiner HL. Kappa light chains in spinal fluid for diagnosing multiple sclerosis. *JAMA* 1994;272(3):242-243.
10. **Khoury SJ**, Guttmann CR, Orav EJ, Hohol MJ, Ahn SS, Hsu L, Kikinis R, Mackin GA, Jolesz FA, Weiner HL. Longitudinal MRI in multiple sclerosis: correlation between disability and lesion burden. *Neurology* 1994;44(11):2120-2124.
11. Balashov KE, **Khoury SJ**, Hafler DA, Weiner HL. Inhibition of T cell responses by activated human CD8+ T cells is mediated by interferon-gamma and is defective in chronic progressive multiple sclerosis. *J Clin Invest* 1995;95(6):2711-2719. PMC295954. doi: 10.1172/JCI117973
12. **Khoury SJ**, Gallon L, Chen W, Betres K, Russell ME, Hancock WW, Carpenter CB, Sayegh MH, Weiner HL. Mechanisms of acquired thymic tolerance in experimental autoimmune encephalomyelitis: thymic dendritic-enriched cells induce specific peripheral T cell unresponsiveness in vivo. *J Exp Med* 1995;182(2):357-366.
13. **Khoury SJ**, Akalin E, Chandraker A, Turka LA, Linsley PS, Sayegh MH, Hancock WW. CD28-B7 costimulatory blockade by CTLA4Ig prevents actively induced experimental autoimmune encephalomyelitis and inhibits Th1 but spares Th2 cytokines in the central nervous system. *J Immunol* 1995;155(10):4521-4524.
14. Fukaura H, Kent SC, Pietrusewicz MJ, **Khoury SJ**, Weiner HL, Hafler DA. Induction of

- circulating myelin basic protein and proteolipid protein-specific transforming growth factor-beta1-secreting Th3 T cells by oral administration of myelin in multiple sclerosis patients. *J Clin Invest* 1996;98(1):70-77. PMC507402. doi: 10.1172/JCI118779
15. Chen W, Murphy B, Waaga AM, Willett TA, Russell ME, **Khoury SJ**, and Sayegh MH. Mechanisms of indirect allorecognition in graft rejection: class II MHC allopeptide-specific T cell clones transfer delayed-type hypersensitivity responses in vivo. *Transplantation* 1996;62(6):705-710.
 16. **Khoury SJ**, Gallon L, Verburg RR, Chandraker A, Peach R, Linsley PS, Turka LA, Hancock WW, Sayegh MH. Ex vivo treatment of antigen-presenting cells with CTLA4Ig and encephalitogenic peptide prevents experimental autoimmune encephalomyelitis in the Lewis rat. *J Immunol* 1996;157(8):3700-3705.
 17. Balashov KE, Smith DR, **Khoury SJ**, Hafler DA, Weiner HL. Increased interleukin 12 production in progressive multiple sclerosis: induction by activated CD4⁺ T cells via CD40 ligand. *Proc Natl Acad Sci USA* 1997;94(2):599-603. PMC19559. doi: 10.1073/pnas.94.2.599
 18. Hohol MJ, Guttmann CR, Orav J, Mackin GA, Kikinis R, **Khoury SJ**, Jolesz FA, Weiner HL. Serial neuropsychological assessment and magnetic resonance imaging analysis in multiple sclerosis. *Arch Neurol* 1997;54(8):1018-1025.
 19. Chen W, Issazadeh S, Sayegh MH, **Khoury SJ**. In vivo mechanisms of acquired thymic tolerance. *Cell Immunol* 1997;179(2):165-173. doi: 10.1006/cimm.1997.1165
 20. Smith DR, Balashov KE, Hafler DA, **Khoury SJ**, Weiner HL. Immune deviation following pulse cyclophosphamide/methylprednisolone treatment of multiple sclerosis: increased interleukin-4 production and associated eosinophilia. *Ann Neurol* 1997;42(3):313-318. doi: 10.1002/ana.410420307
 21. Gallon L, Chandraker A, Issazadeh S, Peach R, Linsley PS, Turka LA, Sayegh MH, **Khoury SJ**. Differential effects of B7-1 blockade in the rat experimental autoimmune encephalomyelitis model. *J Immunol* 1997;159(9):4212-4216.
 22. Chen W, Sayegh MH, **Khoury SJ**. Mechanisms of acquired thymic tolerance in vivo: intrathymic injection of antigen induces apoptosis of thymocytes and peripheral T cell anergy. *J Immunol* 1998;160(3):1504-1508.
 23. Parr MJ, Wen PY, Schaub M, **Khoury SJ**, Sayegh MH, Fine HA. Immune parameters affecting adenoviral vector gene therapy in the brain. *J Neurovirol* 1998;4(2):194-203.
 24. Samoilova EB, Horton JL, Zhang H, **Khoury SJ**, Weiner HL, Chen Y. CTLA-4 is required for the induction of high dose oral tolerance. *Int Immunol* 1998;10(4):491-498. doi: 10.1093/intimm/10.4.491
 25. Takashima H, Smith DR, Fukaura H, **Khoury SJ**, Hafler DA, Weiner HL. Pulse cyclophosphamide plus methylprednisolone induces myelin-antigen-specific IL-4-secreting T cells in multiple sclerosis patients. *Clin Immunol Immunopathol* 1998;88(1):28-34.
 26. Issazadeh S, Navikas V, Schaub M, Sayegh MH, **Khoury S**. Kinetics of expression of costimulatory molecules and their ligands in murine relapsing experimental autoimmune encephalomyelitis in vivo. *J Immunol* 1998;161(3):1104-1112.
 27. Comabella M, Balashov K, Issazadeh S, Smith D, Weiner HL, **Khoury SJ**. Elevated interleukin-12 in progressive multiple sclerosis correlates with disease activity and is normalized by pulse cyclophosphamide therapy. *J Clin Invest* 1998;102(4):671-678. PMC508928. doi: 10.1172/JCI3125
 28. Balashov KE, Olek MJ, Smith DR, **Khoury SJ**, Weiner HL. Seasonal variation of interferon-gamma production in progressive multiple sclerosis. *Ann Neurol* 1998;44(5):824-828. doi: 10.1002/ana.410440519

29. Issazadeh S, Zhang M, Sayegh MH, **Khoury SJ**. Acquired thymic tolerance: role of CTLA4 in the initiation and maintenance of tolerance in a clinically relevant autoimmune disease model. *J Immunol* 1999;162(2):761-765.
30. Schaub M, Issazadeh S, Stadlbauer TH, Peach R, Sayegh MH, **Khoury SJ**. Costimulatory signal blockade in murine relapsing experimental autoimmune encephalomyelitis. *J Neuroimmunol* 1999;96(2):158-166.
31. **Khoury SJ**, Orav EJ, Guttman CR, Kikinis R, Jolesz FA, Weiner HL. Changes in serum levels of ICAM and TNF-R correlate with disease activity in multiple sclerosis. *Neurology* 1999;53(4):758-764.
32. Hohol MJ, Olek MJ, Orav EJ, Stazzone L, Hafler DA, **Khoury SJ**, Dawson DM, Weiner HL. Treatment of progressive multiple sclerosis with pulse cyclophosphamide/methylprednisolone: response to therapy is linked to the duration of progressive disease. *Mult Scler* 1999;5:403-409. doi: 10.1177/135245859900500i606
33. Weiner HL, Guttman CR, **Khoury SJ**, Orav EJ, Hohol MJ, Kikinis R, Jolesz FA. Serial magnetic resonance imaging in multiple sclerosis: correlation with attacks, disability, and disease stage. *J Neuroimmunol* 2000;104(2):164-173.
34. Issazadeh S, Abdallah K, Chitnis T, Chandraker A, Wells AD, Turka LA, Sayegh MH, **Khoury SJ**. Role of passive T-cell death in chronic experimental autoimmune encephalomyelitis. *J Clin Invest* 2000;105(8):1109-1116. PMC3000830. doi: 10.1172/JCI8607
35. Kishimoto K, Dong VM, Issazadeh S, Fedoseyeva EV, Waaga AM, Yamada A, Sho M, Benichou G, Auchincloss H Jr, Grusby MJ, **Khoury SJ**, Sayegh MH. The role of CD154-CD40 versus CD28-B7 costimulatory pathways in regulating allogeneic Th1 and Th2 responses in vivo. *J Clin Invest* 2000;106(1):63-72. PMC314364. doi: 10.1172/JCI9586
36. Balashov KE, Comabella M, Ohashi T, **Khoury SJ**, Weiner HL. Defective regulation of IFN γ and IL-12 by endogenous IL-10 in progressive MS. *Neurology* 2000;55(2):192-198.
37. **Khoury SJ**, Guttman CR, Orav EJ, Kikinis R, Jolesz FA, Weiner HL. Changes in activated T cells in the blood correlate with disease activity in multiple sclerosis. *Arch Neurol* 2000;57(8):1183-1189.
38. Frank MH, Denton MD, Alexander SI, **Khoury SJ**, Sayegh MH, Briscoe DM. Specific MDR1 P-glycoprotein blockade inhibits human alloimmune T cell activation in vitro. *J Immunol* 2001;166(4):2451-2459.
39. Chitnis T, Najafian N, Abdallah KA, Dong V, Yagita H, Sayegh MH, **Khoury SJ**. CD28-independent induction of experimental autoimmune encephalomyelitis. *J Clin Invest* 2001;107(5):575-583. PMC199425. doi: 10.1172/JCI11220
40. Waaga AM, Gasser M, Kist-van Holthe JE, Najafian N, Muller A, Vella JP, Womer KL, Chandraker A, **Khoury SJ**, Sayegh MH. Regulatory functions of self-restricted MHC class II allopeptide-specific Th2 clones in vivo. *J Clin Invest* 2001;107(7):909-916. PMC199572. doi: 10.1172/JCI11427
41. Makhlof K, Comabella M, Imitola J, Weiner HL, **Khoury SJ**. Oral salbutamol decreases IL-12 in patients with secondary progressive multiple sclerosis. *J Neuroimmunol* 2001;117(1-2):156-165.
42. Makhlof K, Weiner HL, **Khoury SJ**. Increased percentage of IL-12⁺ monocytes in the blood correlates with the presence of active MRI lesions in MS. *J Neuroimmunol* 2001;119(1):145-149.
43. Chitnis T, Najafian N, Benou C, Salama AD, Grusby MJ, Sayegh MH, **Khoury SJ**. Effect of targeted disruption of STAT4 and STAT6 on the induction of experimental autoimmune

- encephalomyelitis. *J Clin Invest* 2001;108(5):739-747. PMC209380. doi: 10.1172/JCI12563
44. Karni A, Koldzic DN, Bharanidharan P, **Khoury SJ**, Weiner HL. IL-18 is linked to raised IFN-gamma in multiple sclerosis and is induced by activated CD4(+) T cells via CD40-CD40 ligand interactions. *J Neuroimmunol*. 2002 Apr;125(1-2):134-140.
 45. Comabella M, Imitola J, Weiner HL, **Khoury SJ**. Interferon-beta treatment alters peripheral blood monocytes chemokine production in MS patients. *J Neuroimmunol*. 2002 May;126(1-2):205-212.
 46. O'Connor KC, Chitnis T, Griffin DE, Piyasirisilp S, Bar-Or A, **Khoury S**, Wucherpfennig KW, Hafler DA. Myelin basic protein-reactive autoantibodies in the serum and cerebrospinal fluid of multiple sclerosis patients are characterized by low-affinity interactions. *J Neuroimmunol*. 2003 Mar;136(1-2):140-148.
 47. Ansari MJ, Salama AD, Chitnis T, Smith RN, Yagita H, Akiba H, Yamazaki T, Azuma M, Iwai H, **Khoury SJ**, Auchincloss H Jr, Sayegh MH. The programmed death-1 (PD-1) pathway regulates autoimmune diabetes in nonobese diabetic (NOD) mice. *J Exp Med*. 2003 Jul 7;198(1):63-69. PMC196083. doi: 10.1084/jem.20022125
 48. Salama AD, Chitnis T, Imitola J, Ansari MJ, Akiba H, Tushima F, Azuma M, Yagita H, Sayegh MH, **Khoury SJ**. Critical role of the programmed death-1 (PD-1) pathway in regulation of experimental autoimmune encephalomyelitis. *J Exp Med*. 2003 Jul 7;198(1):71-8. PMC2196082. doi: 10.1084/jem.20022119.
 49. Najafian N, Chitnis T, Salama AD, Zhu B, Benou C, Yuan X, Clarkson MR, Sayegh MS, **Khoury SJ**. Regulatory functions CD8+CD28- T cells in an autoimmune disease model. *J Clin Invest*. 2003 Oct;112(7):1037-1048. PMC198520. doi: 10.1172/JCI17935
 50. Sheen VL, Ganesh VS, Topcu M, Sebire G, Bodell A, Hill RS, Grant PE, Shugart YY, Imitola J, **Khoury SJ**, Guerrini R, Walsh CA. Mutations in ARFGEF2 implicate vesicle trafficking in neural progenitor proliferation and migration in the human cerebral cortex. *Nat Genet*. 2004 Jan;36(1):69-76. doi: 10.1038/ng1276
 51. Karni A, Balashov K, Hancock WW, Bharanidharan P, Abraham M, **Khoury SJ**, Weiner HL. Cyclophosphamide modulates CD4+ T cells into a T helper type 2 phenotype and reverses increased IFN-gamma production of CD8+ T cells in secondary progressive multiple sclerosis. *J Neuroimmunol*. 2004 Jan;146(1-2):189-198.
 52. Chitnis T, Salama AD, Grusby MJ, Sayegh MH, **Khoury SJ**. Defining Th1 and Th2 immune responses in a reciprocal cytokine environment in vivo. *J Immunol*. 2004 Apr 1;172(7):4260-4265.
 53. Imitola J, Comabella M, Chandraker AK, Dangond F, Sayegh MH, Snyder EY, **Khoury SJ**. Neural stem/progenitors cells express costimulatory molecules that are differentially regulated by inflammatory and apoptotic stimuli. *Am J Pathol*. 2004 May;164(5):1615-1625. PMC1615661. doi: 10.1016/S0002-9440(10)63720-0
 54. Magee CC, Denton MD, Womer KL, **Khoury SJ**, Sayegh MH. Assessment by flow cytometry of intracellular cytokine production in the peripheral blood cells of renal transplant recipients. *Clin Transplant*. 2004 Aug;18(4):395-401. doi: 10.1111/j.1399-0012.2004.00179.x
 55. Meier DS, Weiner HL, **Khoury SJ**, Guttman CRG. Magnetic resonance imaging surrogates of multiple sclerosis pathology and their relationship to central nervous system atrophy. *J Neuroimaging*. 2004;14(3 Suppl):46S-53S. doi:10.1177/1051228404266268
 56. Nieto M, Monuki ES, Tang H, Imitola J, Haubst N, **Khoury SJ**, Cunningham J, Gotz M, Walsh CA. Expression of Cux-1 and Cux-2 in the subventricular zone and upper layers II-IV of the cerebral cortex. *J Comp Neurol*. 2004 Nov 8;479(2):168-180. doi: 10.1002/cne.20322

57. Imitola J, Raddassi K, Park KI, Mueller FJ, Nieto M, Teng YD, Frenkel D, Li J, Sidman RL, Walsh CA, Snyder EY, **Khoury SJ**. Directed migration of neural stem cells to sites of CNS injury by the stromal cell-derived factor 1alpha/CXC chemokine receptor 4 pathway. *Proc Natl Acad Sci USA*. 2004 Dec 28;101(52):18117-18122. PMC536055. doi: 10.1073/pnas.0408258102
58. Kutok JL, Yang X, Folkerth RD, Imitola J, Raddassi K, Yano Y, Salahuddin S, Lawitts J, Imboden H, Chinami M, Shirakawa T, Turner H, **Khoury S**, Sayegh MH, Scadden D, Adra C. The cell cycle associated protein, HTm4, is expressed in differentiating cells from hematopoietic and central nervous system in mice. *J Mol Histol*. 2005 Feb;36(1-2):77-87. doi: 10.1007/s10735-004-3913-8
59. Benou C, Wang Y, Imitola J, VanVlerken L, Chandras C, Karalis KP, **Khoury SJ**. Corticotropin-releasing hormone contributes to the peripheral inflammatory response in experimental autoimmune encephalomyelitis. *J Immunol*. 2005 May 1;174(9):5407-5413.
60. Prat A, Biernacki K, Saroli T, Orav JE, Guttman CR, Weiner HL, **Khoury SJ**, Antel JP. Kinin B1 receptor expression on multiple sclerosis mononuclear cells: correlation with magnetic resonance imaging T2-weighted lesion volume and clinical disability. *Arch Neurol*. 2005 May;62(5):795-800. doi: 10.1001/archneur.62.5.795
61. Camelo S, Iglesias AH, Hwang D, Due B, Ryu H, Smith K, Gray SG, Imitola J, Duran G, Assaf B, Langley B, **Khoury SJ**, Stephanopoulos G, De Girolami U, Ratan, RR, Ferrante, RJ, Dangond F. Transcriptional therapy with the histone deacetylase inhibitor trichostatin A ameliorates experimental autoimmune encephalomyelitis. *J Neuroimmunol*. 2005 Jul;164(1-2):10-21. doi: 10.1016/j.jneuroim.2005.02.022
62. Guleria I, Khosroshahi A, Ansari MJ, Habicht A, Azuma M, Yagita H, Noelle RJ, Coyle A, Mellor AL, **Khoury SJ**, Sayegh MH. A critical role for the programmed death ligand 1 in fetomaternal tolerance. *J Exp Med*. 2005 Jul 18;202(2):231-237. PMC2213002. doi: 10.1084/jem.20050019
63. Zhu C, Anderson AC, Schubart A, Xiong H, Imitola J, **Khoury SJ**, Zheng XX, Strom TB, Kuchroo VK. The Tim-3 ligand galectin-9 negatively regulates T helper type 1 immunity. *Nat Immunol*. 2005 Dec;6(12):1245-1252. doi: 10.1038/ni1271
64. Zhu B, Guleria I, Khosroshahi A, Chitnis T, Imitola J, Azuma M, Yagita H, Sayegh MH, **Khoury SJ**. Differential role of programmed death-1 ligand and programmed death-2 ligand in regulating the susceptibility and chronic progression of experimental autoimmune encephalomyelitis. *J Immunol*. 2006 Mar 15;176(6):3480-3489.
65. Laplaud DA, Berthelot L, Miqueu P, Bourcier K, Moynard J, Oudinet Y, Guillet M, Ruiz C, Oden N, Brouard S, Guttman CR, Weiner HL, **Khoury SJ**, Soulillou JP. Serial blood T cell repertoire alterations in multiple sclerosis patients; correlation with clinical and MRI parameters. *J Neuroimmunol*. 2006 Aug;177(1-2):151-160. doi: 10.1016/j.jneuroim.2006.05.006
66. Karni A, Abraham M, Monsonogo A, Cai G, Freeman GJ, Hafler D, **Khoury SJ**, Weiner HL. Innate immunity in multiple sclerosis: myeloid dendritic cells in secondary progressive multiple sclerosis are activated and drive a proinflammatory immune response. *J Immunol*. 2006 Sep 15;177(6):4196-4202.
67. Kaneko S, Wang J, Kaneko M, Yiu G, Hurrell JM, Chitnis T, **Khoury SJ**, He Z. Protecting axonal degeneration by increasing nicotinamide adenine dinucleotide levels in experimental autoimmune encephalomyelitis models. *J Neurosci*. 2006 Sep 20;26(38):9794-9804. doi: 10.1523/JNEUROSCI.2116-06.2006
68. Chitnis T, Imitola J, Wang Y, Elyaman W, Chawla P, Sharuk M, Raddassi K, Bronson RT, **Khoury SJ**. Elevated neuronal expression of CD200 protects Wld^s mice from

- inflammation-mediated neurodegeneration. *Am J Pathol.* 2007 May;170(5):1695-1712. PMC1854964. doi: 10.2353/ajpath.2007.060677
69. Gauthier SA, Mandel M, Guttmann CR, Glanz BI, **Khoury SJ**, Betensky RA, Weiner HL. Predicting short-term disability in multiple sclerosis. *Neurology.* 2007 Jun 12;68(24):2059-2065. doi: 10.1212/01.wnl.0000264890.97479.b1
 70. Xiao S, Najafian N, Reddy J, Albin M, Zhu C, Jensen E, Imitola J, Korn T, Anderson AC, Zhang Z, Gutierrez C, Moll T, Sobel RA, Umetsu DT, Yagita H, Akiba H, Strom T, Sayegh MH, DeKruyff RH, **Khoury SJ**, Kuchroo VK. Differential engagement of Tim-1 during activation can positively or negatively costimulate T cell expansion and effector function. *J Exp Med.* 2007 Jul 9;204(7):1691-1702. PMC2118637. doi: 10.1084/jem.20062498
 71. Glanz B, Holland C, Gauthier S, Amunwa E, Liptak Z, Houtchens M, Sperling R, **Khoury S**, Guttmann C, Weiner H. Cognitive dysfunction in patients with clinically isolated syndromes or newly diagnosed multiple sclerosis. *Mult Scler.* 2007 Sep;13(8):1004-1010. doi: 10.1177/1352458507077943
 72. Zhu B, Bando Y, Xiao S, Yang K, Anderson AC, Kuchroo VK, **Khoury SJ**. CD11b+Ly-6Chi Suppressive Monocytes in Experimental Autoimmune Encephalomyelitis. *J Immunol.* 2007 Oct 15;179(8):5228-5237.
 73. Rasmussen S, Wang Y, Kivisakk P, Bronson RT, Meyer M, Imitola J, **Khoury SJ**. Persistent activation of microglia is associated with neuronal dysfunction of callosal projecting pathways and multiple sclerosis-like lesions in relapsing remitting experimental autoimmune encephalomyelitis. *Brain.* 2007 Nov;130(Pt 11):2816-2829. doi: 10.1093/brain/awm219
 74. Elyaman W, Bradshaw EM, Wang Y, Oukka M, Kivisäkk P, Chiba S, Yagita H, **Khoury SJ**. JAGGED1 and delta1 differentially regulate the outcome of experimental autoimmune encephalomyelitis. *J Immunol.* 2007 Nov 1;179(9):5990-5998.
 75. De Jager PL, Rossin E, Pyne S, Tamayo P, Ottoboni L, Viglietta V, Weiner M, Soler D, Izmailova E, Faron-Yowe L, O'Brien C, Freeman S, Granados S, Parker A, Roubenoff R, Mesirov JP, **Khoury SJ**, Hafler DA, Weiner HL. Cytometric profiling in multiple sclerosis uncovers patient population structure and a reduction of CD8low cells. *Brain.* 2008 Jul;131(Pt 7):1701-1711. PMC2730047. doi: 10.1093/brain/awn118
 76. Elyaman W, Kivisäkk P, Reddy J, Chitnis T, Raddassi K, Imitola J, Bradshaw E, Kuchroo VK, Yagita H, Sayegh MH, **Khoury SJ**. Distinct functions of autoreactive memory and effector CD4+ T cells in experimental autoimmune encephalomyelitis. *Am J Pathol.* 2008 Aug;173(2):411-422. PMC2475778. doi: 10.2353/ajpath.2008.080142
 77. Liptak Z, Berger AM, Sampat MP, Charil A, Felsovalyi O, Healy BC, Hildenbrand P, **Khoury SJ**, Weiner HL, Bakshi R, Guttmann CR. Medulla oblongata volume: a biomarker of spinal cord damage and disability in multiple sclerosis. *AJNR Am J Neuroradiol.* 2008 Sep;29(8):1465-1470. doi: 10.3174/ajnr.A1162
 78. Viglietta V, Bourcier K, Buckle GJ, Healy B, Weiner HL, Hafler DA, Egorova S, Guttmann CR, Rusche JR, **Khoury SJ**. CTLA4Ig treatment in patients with multiple sclerosis: an open-label, phase 1 clinical trial. *Neurology.* 2008 Sep 16;71(12):917-24. doi: 10.1212/01.wnl.0000325915.00112.61
 79. Pluchino S, Muzio L, Imitola J, Deleidi M, Alfaro-Cervello C, Salani G, Porcheri C, Brambilla E, Cavanini F, Bergamaschi A, Garcia-Verdugo JM, Comi G, **Khoury SJ**, Martino G. Persistent inflammation alters the function of the endogenous brain stem cell compartment. *Brain.* 2008 Oct;131(Pt 10):2564-2578. PMC2570715. doi: 10.1093/brain/awn198
 80. Wang Y, Imitola J, Rasmussen S, O'Connor KC, **Khoury SJ**. Paradoxical dysregulation of the neural stem cell pathway sonic hedgehog-Gli1 in autoimmune encephalomyelitis and

- multiple sclerosis. *Ann Neurol.* 2008 Oct;64(4):417-427. PMC2762219. doi: 10.1002/ana.21457
81. Bakshi R, Neema M, Healy BC, Liptak Z, Betensky RA, Buckle GJ, Gauthier SA, Stankiewicz J, Meier D, Egorova S, Arora A, Guss ZD, Glanz B, **Khoury SJ**, Guttmann CR, Weiner HL. Predicting clinical progression in multiple sclerosis with the magnetic resonance disease severity scale. *Arch Neurol.* 2008 Nov;65(11):1449-1453. PMC2762216. doi: 10.1001/archneur.65.11.1449
 82. Dardalhon V, Awasthi A, Kwon H, Galileos G, Gao W, Sobel RA, Mitsdoerffer M, Strom TB, Elyaman W, Ho IC, **Khoury S**, Oukka M, Kuchroo VK. IL-4 inhibits TGF-beta-induced Foxp3+ T cells and, together with TGF-beta, generates IL-9+ IL-10+ Foxp3(-) effector T cells. *Nat Immunol.* 2008 Dec;9(12):1347-134755. PMC2999006. doi: 10.1038/ni.1677
 83. Quintana FJ, Farez MF, Viglietta V, Iglesias AH, Merbl Y, Izquierdo G, Lucas M, Basso AS, **Khoury SJ**, Lucchinetti CF, Cohen IR, Weiner HL. Antigen microarrays identify unique serum autoantibody signatures in clinical and pathologic subtypes of multiple sclerosis. *Proc Natl Acad Sci USA.* 2008 Dec 2;105(48):18889-18894. PMC2596207. doi: 10.1073/pnas.0806310105
 84. Neema M, Arora A, Healy BC, Guss ZD, Brass SD, Duan Y, Buckle GJ, Glanz B, Stazzone L, **Khoury SJ**, Weiner HL, Guttmann CRG, Bakshi R. Deep gray matter involvement on brain MRI scans is associated with clinical progression in multiple sclerosis. *J Neuroimaging.* 2009 Jan;19(1):3-8. PMC2762230. doi: 10.1111/j.1552-6569.2008.00296.x
 85. Wang Y, Evans JT, Rodriguez F, Fields P, Mueller C, Chitnis T, **Khoury SJ**, Bynoe MS. A tale of two STAT6 knock out mice in the induction of experimental autoimmune encephalomyelitis. *J Neuroimmunol* 2009 Jan 3;206 (1-2):76-85. PMC2762219. doi: 10.1016/j.jneuroim.2008.11.003
 86. Ali EN, Healy BC, Stazzone LA, Brown BA, Weiner HL, **Khoury SJ**. Daclizumab in Treatment of Multiple Sclerosis Patients. *Multiple Sclerosis.* 2009 Feb;15(2):272-274. doi: 10.1177/1352458508097468
 87. Gauthier SA, Berger AM, Liptak Z, Duan Y, Egorova S, Buckle G, Glanz BI, **Khoury SJ**, Bakshi R, Weiner HL, Guttmann CRG. Rate of Brain Atrophy in Benign vs Early Multiple Sclerosis. *Arch Neurol.* 2009 Feb;66(2):234-237. doi: 10.1001/archneurol.2008.567
 88. Kivisäkk P, Imitola J, Rasmussen S, Elyaman W, Zhu B, Ransohoff RM, **Khoury SJ**. Localizing central nervous system immune surveillance: Meningeal antigen-presenting cells activate T cells during experimental autoimmune encephalomyelitis. *Ann Neurol.* 2009 Apr;65(4):457-469. doi: 10.1002/ana.21379
 89. Kivisäkk P, Healy BC, Viglietta V, Quintana FJ, Hootstein MA, Weiner HL, **Khoury SJ**. Natalizumab treatment is associated with peripheral sequestration of proinflammatory T cells. *Neurology.* 2009 Jun 2;72(22):1922-30. PMC2690969. doi: 10.1212/WNL.0b013e3181a8266f
 90. Healy BC, Ali E, Guttmann CRG, Chitnis T, Glanz B, Buckle G, Houtchens M, Stazzone L, Moodie J, Berger AM, Duan Y, Bakshi R, **Khoury SJ**, Weiner HL, Ascherio A. Smoking and disease progression in multiple sclerosis. *Arch Neurol.* 2009 Jul;66(7):858-64. PMC2754172. doi: 10.1001/archneurol.2009.122
 91. Elyaman W, Bradshaw EM, Uyttenhove C, Dardalhon V, Awasthi A, Imitola J, Bettelli E, Oukka M, van Snick J, Renauld JC, Kuchroo VK, **Khoury SJ**. IL-9 induces differentiation of TH17 cells and enhances function of FoxP3+ natural regulatory T cells. *Proc Natl Acad Sci USA.* 2009 Aug 4;106(31):12885-12890. PMC2722314. doi: 10.1073/pnas.0812530106
 92. Gauthier SA, Glanz BI, Mandel M, Tsagkaropoulos A, Neema M, Stankiewicz J, Arora A, Duan Y, Liptak Z, Egorova S, Buckle GJ, Bakshi R, Guttmann CR, **Khoury SJ**, Weiner

- HL. Incidence and factors associated with treatment failure in the CLIMB multiple sclerosis cohort study. *J Neurol Sci.* 2009 Sep 15;284(1-2):116-119. doi: 10.1016/j.jns.2009.04.020
93. McLaughlin KA, Chitnis T, Newcombe J, Franz B, Kennedy J, McArdel S, Kuhle J, Kappos L, Rostasy K, Pohl D, Gagne D, Ness JM, Tenenbaum S, O'Connor KC, Vigiotta V, Wong SJ, Tavakoli NP, de Seze J, Idrissova Z, **Khoury SJ**, Bar-Or A, Hafler DA, Banwell B, Wucherpfennig KW: Age-dependent B cell autoimmunity to a myelin surface antigen in pediatric multiple sclerosis, *J Immunol* 2009 Sep 15; 183 (6):4067-4076. PMC2795331. doi: 10.4049/jimmunol.0801888
 94. Ilan Y, Zigmond E, Lalazar G, Dembinsky A, Ben Ya'acov A, Hemed N, Kasis I, Axelrod E, Zolotarov L, Klein A, El Haj M, Gandhi R, Baecher-Allan C, Wu H, Murugaiyan G, Kivisakk P, Farez MF, Quintana FJ, **Khoury SJ**, Weiner HL. Oral Administration of OKT3 Monoclonal Antibody to Human Subjects Induces a Dose-Dependent Immunologic Effect in T Cells and Dendritic Cells. *J Clin Immunol.* 2010 Jan;30(1):167-77. PMC2822125. doi: 10.1007/s10875-009-9323-7
 95. Stankiewicz JM, Glanz BI, Healy BC, Arora A, Neema M, Benedict RH, Guss ZD, Tauhid S, Buckle GJ, Houtchens MK, **Khoury SJ**, Weiner HL, Guttmann CR, Bakshi R. Brain MRI Lesion Load at 1.5T and 3T versus Clinical Status in Multiple Sclerosis. *J Neuroimaging.* 2009 Nov 3; 21(2):e50-6. NIHMSID251387. doi: 10.1111/j.1552-6569.2009.00449.x
 96. Liu Y, Bando Y, Vargas-Lowy D, Elyaman W, **Khoury SJ**, Huang T, Reif K, Chitnis T. CD200R1 Agonist Attenuates Mechanisms of Chronic Disease in a Murine Model of Multiple Sclerosis. *J Neurosci.* 2010 Feb 30 (6): 2025-2038. PMC2837938. doi: 10.1523/JNEUROSCI.4272-09.2010
 97. Beriou G, Bradshaw EM, Lozano E, Costantino CM, Hastings WD, Orban T, Elyaman W, **Khoury SJ**, Kuchroo VK, Baecher-Allan C, Hafler DA. TGF- β Induces IL-9 Production from Human Th17 Cells. *J Immunol.* 2010 Jul 1;185(1):46-54. PMC2936106. doi: 10.4049/jimmunol.1000356
 98. Healy BC, Liguori M, Tran D, Chitnis T, Glanz B, Wolfish C, Gauthier S, Buckle G, Houtchens M, Stazzone L, **Khoury S**, Hartzmann R, Fernandez-Vina M, Hafler DA, Weiner HL, Guttmann CR, De Jager PL. HLA B*44: protective effects in MS susceptibility and MRI outcome measures. *Neurology.* 2010 Aug 17;75(7):634-40. PMC2931768. doi: 10.1212/WNL.0b013e3181ed9c9c
 99. **Khoury SJ**, Healy BC, Kivisäkk P, Vigiotta V, Egorova S, Guttmann CR, Wedgwood JF, Hafler DA, Weiner HL, Buckle G, Cook S, Reddy S. A randomized controlled double-masked trial of albuterol add-on therapy in patients with multiple sclerosis. *Arch Neurol.* 2010 Sep;67(9):1055-61. PMC2954052. doi: 10.1001/archneurol.2010.222
 100. **Khoury SJ**, Bakshi, R. Cerebral Pseudoatrophy or Real Atrophy After Therapy in Multiple Sclerosis. *Ann Neurol.* 2010;68(6):778-79. doi: 10.1002/ana.22254
 101. Xia Z, Chibnik LB, Glanz BI, Liguori M, Shuman JM, Tran D, **Khoury SJ**, Chitnis T, Holyoak T, Weiner WL, Guttmann CRG, De Jager PL. A Putative Alzheimer's Disease Risk Allele in PCK1 Influences Brain Atrophy in Multiple Sclerosis. *PLoS ONE.* 2010 Nov 5(11): e14169. PMC2994939. doi: 10.1371/journal.pone.0014169
 102. Starossom SC, Imitola J, Wang Y, Cao L, **Khoury SJ**. Subventricular Zone Microglia Transcriptional Networks. *Brain Behav Immun.* 2011 Jul; 25 (5) 991–999. PMC3109092. doi: 10.1016/j.bbi.2010.11.002
 103. Imitola J, Côté D, Rasmussen S, Xie XS, Liu Y, Chitnis T, Sidman RL, Lin CP, **Khoury SJ**. Multimodal coherent anti-stokes raman scattering microscopy reveals microglia-associated myelin and axonal dysfunction in multiple sclerosis-like lesions in mice. *J Biomed Optics.* 2011 Feb; 16(2):021109/1-021109/11. doi: 10.1117/1.3533312

104. Rasmussen S, Imitola I, Ayuso-Sacido A, Wang Y, Starossom S, Kivisäkk P, Zhu B, Meyer M, Bronson RT, Manuel Garcia-Verdugo J, **Khoury SJ**. Reversible Neural Stem Cell Niche Dysfunction In A Model Of Multiple Sclerosis. *Ann Neurol*. 2011 May;69 (5):878–891. PMC3082630. doi: 10.1002/ana.22299
105. Gross R, Healy BC, Cepok S, Chitnis T, **Khoury SJ**, Hemmer B, Weiner HL, Hafler DA, De Jager PL. Population structure and HLA DRB1*1501 in the response of subjects with multiple sclerosis to first-line treatments, *J Neuroimmunol* 2011 Apr; 233(1-2):168-174. doi: 10.1016/j.jneuroim.2010.10.038
106. Liguori M, Healy BC, Glanz BI, **Khoury SJ**, Moscufo N, Weiner HL, De Jager PL, Guttmann CR. HLA (A-B-C and -DRB1) alleles and brain MRI changes in multiple sclerosis: a longitudinal study, *Genes Immun*. 2011 Apr; 12(3):183-190. doi: 10.1038/gene.2010.58
107. Liguori M, Meier DS, Hildenbrand P, Healy BC, Chitnis T, Baruch NF, **Khoury SJ**, Weiner HL, Bakshi R, Barkhof F, Guttmann CRG. One-year activity on subtraction MRI predicts subsequent 4-year activity and progression in multiple sclerosis. *J Neurol Neurosurg Psych*. 2011; 82(10): 1125-31. doi: 10.1136/jnnp.2011.242115
108. Bassil R, Zhu B, Lahoud Y, Riella LV, Yagita H, Elyaman W, **Khoury SJ**. Notch Ligand Delta-Like 4 Blockade Alleviates Experimental Autoimmune Encephalomyelitis by Promoting Regulatory T Cell Development. *J Immunol* 2011 Sept;187(5):2322-8. PMC3311114. doi: 10.4049/jimmunol.1100725
109. Zhu B, Kennedy JK, Wang Y, Sandoval-Garcia C, Cao L, Xiao S, Wu C, Elyaman W, **Khoury SJ**. Plasticity of Ly-6Chi Myeloid Cells in T Cell Regulation. *J Immunol* 2011 Sept;187(5):2418-32. PMC3159773. doi: 10.4049/jimmunol.1100403
110. Elyaman W, **Khoury SJ**, Scott DW, De Groot AS. Potential application of Tregitopes as immunomodulating agents in multiple sclerosis. *Neurology Research International*. 2011;2011:256460.
111. Zhu B, Trikudanathan S, Zozulya AL, Sandoval-Garcia C, Kennedy JK, Atochina O, Norberg T, Castagner B, Seeberger P, Fabry Z, Harn D, **Khoury SJ**, Guleria I. Immune modulation by Lacto-N-fucopentaose III in experimental autoimmune encephalomyelitis. *Clin Immunol* 2012 Mar; 142(3);351–361. PMC3288504. doi: 10.1016/j.clim.2011.12.006
112. Holland CM, Charil A, Csapo I, Liptak Z, Ichise M, **Khoury SJ**, Bakshi R, Weiner HL, Guttmann CR: The Relationship between Normal Cerebral Perfusion Patterns and White Matter Lesion Distribution in 1,249 Patients with Multiple Sclerosis. *J Neuroimaging*. 2011 Apr;22(2):129-136. doi: 10.1111/j.1552-6569.2011.00585.x
113. Stankiewicz JM, Glanz BI, Healy BC, Arora A, Neema M, Benedict RHB, Guss ZD, Tauhid S, Buckle GJ, Houtchens MK, **Khoury SJ**, Weiner HL, Guttmann CRG, Bakshi. Brain MRI lesion load at 1.5T and 3T versus clinical status in multiple sclerosis R. *J Neuroimaging*. 2011 Apr;21(2):e50-6. doi: 10.1111/j.1552-6569.2009.00449.x
114. Moodie J, Healy BC, Buckle GJ, Gauthier SA, Glanz BI, Arora A, Ceccarelli A, Tauhid S, Han X-M, Venkataraman A, Chitnis T, **Khoury SJ**, Guttmann CRG, Weiner HL, Neema M, Bakshi R. Magnetic resonance disease severity scale (MRDSS) for patients with multiple sclerosis: A longitudinal study. *J Neurol Sci* 2012 Apr;315(1-2):49-54. PMC3319060. doi: 10.1016/j.jns.2011.11.040
115. Elyaman W, Bassil R, Bradshaw EM, Orent W, Lahoud Y, Zhu B, Radtke F, Yagita H and **Khoury SJ**. Notch and Smad3 Signaling Cooperate in the Induction of IL- 9-Producing T Cells. *Immunity* 2012 Apr; 36(4), 623–634. PMC3572366. doi: 10.1016/j.immuni.2012.01.020
116. Ceccarelli A, Jackson JS, Tauhid S, Arora A, Gorky J, Dell’oglio E, Bakshi A, Chitnis T, **Khoury SJ**, Weiner HL, Guttmann CR, Bakshi R, Neema M. The Impact of Lesion In-

- Painting and Registration Methods on Voxel-Based Morphometry in Detecting Regional Cerebral Gray Matter Atrophy in Multiple Sclerosis. *Am J Neuroradiol* 2012, Mar;33: 1579-1585. PMC3425668. doi: 10.3174/ajnr.A3083
117. Starossom SC, Mascanfroni ID, Imitola J, Cao L, Raddassi K, Hernandez SF, Bassil R, Croci DO, Cerliani JP, Wang Y, Elyaman W, **Khoury SJ***, Rabinovich GA* (*Co-Senior). Galectin-1 Deactivates Classically-Activated Microglia and Protects from Inflammation-Induced Neurodegeneration. *Immunity*, 2012 Aug; 37(2), 1-15. PMC3428471. doi: 10.1016/j.immuni.2012.05.023
 118. Purwar R, Schlapbach C, Xiao S, Kang HS, Elyaman W, Jiang X, Jetten AM, **Khoury SJ**, Fuhlbrigge RC, Kuchroo VK, Clark RA, Kupper TS. Robust tumor immunity to melanoma mediated by interleukin-9–producing T cells. *Nature Med* 2012 Aug; 38,1248-1254. PMC3518666. doi: 10.1038/nm.2856
 119. Ottoboni L, Keenan BT, Tamayo P, Kuchroo M, Mesirov JP, Buckle GJ, **Khoury SJ**, Hafler DA, Weiner HL, De Jager PL. An RNA Profile Identifies Two Subsets of Multiple Sclerosis Patients Differing in Disease Activity. *Sci Transl Med* 2012 Sept; 4, 153ra131. PMC3753678. doi: 10.1126/scitranslmed.3004186
 120. Ghandi R, Healy B, Gholipour T, Egorova S, Musallam A, Shuja M, Nejad P, Patel B, Hei H, **Khoury S**, Quintana F, Kivisakk P, Chitnis T, Weiner HL. Circulating microRNAs as biomarkers for disease staging in multiple sclerosis. *Ann Neurol*, 2013 Mar; 73:729–740. doi: 10.1002/ana.23880
 121. Messina S, Vargas-Lowy D, Musallam A, Healy B, Kivisakk P, Ghandi R, Bove R, Gholipour T, **Khoury S**, Weiner HL, Chitnis T. Increased leptin and A-FABP levels in relapsing and progressive forms of MS. *BMC Neurol*. 2013;13(1):172. PMC3829106. doi:10.1186/1471-2377-13-172.
 122. Vargas-Lowy D, Kivisäkk P, Gandhi R, Raddassi K, Soltany P, Gorman MP, **Khoury SJ**, Chitnis T. Increased Th17 response to myelin peptides in pediatric MS. *Clin Immunol* 2013 Jan; 146, 176–184. doi: 10.1016/j.clim.2012.12.008
 123. Yamout B, Alroughani R, Al-Jumah M, **Khoury S**, Abou Zeid N, Dahdaleh M, Alsharoqi I, Inshasi J, Hashem S, Zakaria M, ElKallab K, Alsaadi T, Tawfeek T, Bohlega S. Consensus guidelines for the diagnosis and treatment of multiple sclerosis. *Curr Med Res Opin* 2013 Apr 29, 1–11. doi: 10.1185/03007995.2013.787979
 124. Zhu B, Buttrick T, Bassil R, Zhu C, Olah M, Wu C, Xiao S, Orent W, Elyaman W, **Khoury SJ**. Interleukin 4 and retinoic acid synergistically induce regulatory dendritic cells expressing Aldh1a2. *J Immunol* 2013 Aug; 191, 3139–3151. PMC3773474. doi: 10.4049/jimmunol.1300329
 125. Bove R, Musallam A, Healy BC, Houtchens M, Glanz BI, **Khoury S**, Guttmann CR, De Jager PL and Chitnis T. No sex-specific difference in disease trajectory in multiple sclerosis patients before and after age 50. *BMC Neurology* 2013, 13:73. PMC3707791. doi: 10.1186/1471-2377-13-73
 126. Kivisäkk P, Healy BC, Francois K, Ghandi R, Gholipour T, Egorova S, Sevdalinova V, Quintana F, Chitnis T, Weiner HL, **Khoury SJ**. Evaluation of circulating osteopontin levels in an unselected cohort of patients with multiple sclerosis: Relevance for biomarker development. *MS Journal* 2014 Apr; 20: 438-444. doi: 10.1177/1352458513503052
 127. Yamout B, El-Salem K, Gebeily S, **Khoury S**, Abu Zaid N, Hamoulila K, Al Halabi MS, Al Uqla Z, Al Hamadani H, Hamoodi H, Al Omar A, Dahdaleh M. Multiple Sclerosis in the Levant: A Regional Consensus Statement. *Int J Neurosc* 2014 Sep; 124(9): 635-641
 128. Ottoboni L, Frolich IY, Lee M, Healy BC, Keenan BT, Xia Z, Chitnis T, Guttmann CR, **Khoury SJ**, Weiner HL, Hafler DA, De Jager PL. Clinical relevance and functional

- consequences of the TNFRSF1A multiple sclerosis locus. *Neurology* 2013 Nov;81:1891–1899. PMC3843384. doi: 10.1212/01.wnl.0000436612.66328.8a
129. Kivisäkk P, Francois K, Mbianda J, Ghandi R, Weiner HL, and **Khoury SJ**. Effect of natalizumab treatment on circulating plasmacytoid dendritic cells: a cross-sectional observational study in patients with multiple sclerosis. *PLoS ONE* 2014;9(7) p. e103716. PMC4116240. doi: 10.1371/journal.pone.0103716
 130. Bassil R, Orent W, Olah M, Kurdi AT, Frangieh M, Buttrick T, **Khoury SJ**, and Elyaman W. BCL6 Controls Th9 Cell Development by Repressing *Il9* Transcription. *J Immunol* 2014 Jul; 193:198-207. PMC4130220. doi: 10.4049/jimmunol.1303184
 131. Mouhieddine TH, Darwisha H, Fawaz L, Yamout B, Tamim H, **Khoury SJ**. Risk factors for multiple sclerosis and associations with anti-EBV antibody titers. *Clin Immunol* 2015 May;158: 59–66. doi: 10.1016/j.clim.2015.03.011
 132. Yamout B, Zeineddine M, **Khoury SJ**. Safety and Efficacy of Reduced Fingolimod Dosage Treatment. *J Neuroimmunol* 2015, 285:13-15. doi: 10.1016/j.jneuroim.2015.05.012
 133. Yamout B, Alroughani R, Al-Jumah M, Goueider R, Dahdaleh M, Inshasi J, Hashem S, Alsharoqi I, Sahraian M, **Khoury S**, Alkawi Z, Koussa S, Zakaria M, Al Khaburi J, Alsaadi T, Bohlega S. Consensus recommendations for the diagnosis and treatment of multiple sclerosis: the Middle East North Africa Committee for Treatment and Research In Multiple Sclerosis (MENACTRIMS), Current Medical Research and Opinion 2015 Jul; 31: 1349-1361. doi: 10.1185/03007995.2015.1047750
 134. [Merzaban JS](#), Imitola J, Starossom SC, Zhu B, Wang Y, Lee J, Ali AJ, Olah M, Abuelela AF, **Khoury SJ**, Sackstein R. Cell Surface Glycan Engineering of Neural Stem Cells Augments Neurotropism and Improves Recovery in a Murine Model of Multiple Sclerosis. *Glycobiology* 2015 Dec; 25: 1392–1409. doi: 10.1093/glycob/cwv046
 135. Darwish H, Zeinoun P, Ghusn P, Khoury B, Tamim H, **Khoury SJ**. Serum 25-hydroxyvitamin D predicts cognitive performance in adults. *Neuropsychiatry disease and treatment*. 2015Aug; 11:2217–2223. PMC4556248. doi: 10.2147/NDT.S87014
 136. Yamout B, Zeineddine MM, Tamim H, **Khoury SJ**.^[1]Safety and efficacy of fingolimod in clinical practice: The experience of an academic center in the Middle East. *J Neuroimmunol* 2015; 289:93–97. doi: 10.1016/j.jneuroim.2015.10.015
 137. Alroughani R, Akhtar S, Ahmed SF, **Khoury SJ**, al-Hashel JY, Sahraian^[1]MA, Al-Jumah M, Zeineddine MM, Farhat S, Doumiati H, Yamout B. JC virus seroprevalence and seroconversion in multiple sclerosis cohort: A Middle-Eastern study. *J Neurol Sci* 2016; 360:61–65. doi: 10.1016/j.jns.2015.11.044
 138. Orent W, McHenry AR, Rao DA, White C, Klein H-U, Bassil R, Srivastava G, Replogle JM, Raj T, Frangieh M, Cimpean M, Cuedon N, Chibnik L, **Khoury SJ**, Karlson EW, Brenner MB, De Jager P, Bradshaw EM, Elyaman W. Rheumatoid Arthritis-Associated RBPJ Polymorphism Alters Memory CD4+ T Cells. *Hum Mol Genet* 2016; 25(2):1-14. PMC4881829. doi: 10.1093/hmg/ddv474
 139. Fawaz L, Mrad MF, Kazan JM, Sayegh S, Akika R, **Khoury SJ**. Comparative effect of 25(OH)D3 and 1,25(OH)2D3 on Th17 cell differentiation. *Clin Immunol* 2016; 166-167: 59-71. doi: 10.1016/j.clim.2016.02.011
 140. Kurdi AT, Bassil R, Olah M, Wu C, Xiao S, Taga M, Frangieh M, Buttrick T, Orent W, Bradshaw EM, **Khoury SJ**, ElYaman W. Tiam1/Rac1 Complex Controls *Il17a* Transcription and Autoimmunity. *Nat Comm* 2016; 7:1-14. PMC5062600. doi: 10.1038/ncomms13048
 141. Yamout BI, Abou Zeid N, Taha AJ, Zeineddine MM, **Khoury SJ**. Three cases of herpes zoster radiculitis in MS patients treated with natalizumab. *MSRD* 2016; 9: 122-124. doi: 10.1016/j.msard.2016.07.012

142. **Khoury SJ**, Rochon J, Ding L, Byron M, Ryker K, Tosta P, Gao W, Freedman MS, Arnold DL, Sayre HP, Smilek DE; On behalf of the ACCLAIM Study Group. ACCLAIM: A randomized trial of abatacept (CTLA4-Ig) for relapsing-remitting multiple sclerosis. *Mult Scler J* 2016 (5): 686-695. PMC5288398. doi: 10.1177/1352458516662727
143. Dagher MM, Atieh JA, Soubra MK, **Khoury SJ**, Tamim H, Kaafarani BR. Medical Research Volunteer Program (MRVP): innovative program promoting undergraduate research in the medical field. *BMC Med Educ.* 2016;16(1):160. PMC4893826. doi:10.1186/s12909-016-0670-9
144. Ayoubi El NK, Ghassan S, Said M, Allam J, Darwish H, **Khoury SJ**. Retinal measures correlate with cognitive and physical disability in early multiple sclerosis. *J Neurol.* August 2016;1-9. doi:10.1007/s00415-016-8271-4. doi: 10.1007/s00415-016-8271-4
145. Azcutia V, Bassil R, Herter JM, Engelbertsen D, Newton G, Autio A, Mayadas T, Lichtman AH, **Khoury SJ**, Parkos CA, Elyaman W, Luscinskas FW. Defects in CD4+ T cell LFA-1 integrin-dependent adhesion and proliferation protect CD47-/- mice from EAE. *J Leukocyte Biol* 2017; 101(2):493-505. doi: 10.1189/jlb.3A1215-546RR
146. Darwish H, Haddad R, Osman S, Ghassan S, Yamout B, Tamim H, **Khoury SJ**. Effect of Vitamin D Replacement on Cognition in Multiple Sclerosis Patients. *Sci Reports* 2017; 7:45926. PMC5379671. doi: 10.1038/srep45926
147. Mrad MF, El Ayoubi NK, Esmerian MO, Kazan JM, **Khoury SJ**. Effect of vitamin D replacement on immunological biomarkers in patients with multiple sclerosis. *Clin Immunol* 2017;181:9-15. doi: 10.1016/j.clim.2017.05.017
148. Buttrick T, **Khoury SJ**, Elyaman W. Opposite Functions of STAT3 and Smad3 in Regulating Tiam1 Expression in Th17 cells. *Small GTPases* 2017; Jun 13:1-7. doi: 10.1080/21541248.2017.1341365
149. Yamout BI, Said M, Hannoun S, Zeineddine M, Massouh J, **Khoury SJ**. Rebound syndrome after teriflunomide cessation in a patient with multiple sclerosis. *J Neurol Sci.* 2017;380:79-81. doi:10.1016/j.jns.2017.07.014
150. Bove R, Chitnis T, Cree BA, Tintoré M, Naegelin Y, Uitdehaag BMJ, Kappos L, **Khoury SJ**, Montalban X, Hauser SL, Weiner HL; on behalf of the SUMMIT Consortium (Serially Unified Multicenter Multiple Sclerosis Investigation): creating a repository of deeply phenotyped contemporary multiple sclerosis cohorts. *Multiple Sclerosis Journal.* August 2017;1352458517726657. PMC5821573. doi:10.1177/1352458517726657
151. Yamout BI, **Khoury SJ**, Ayyoub N , Doumiati H , Fakhreddine M , AhmedSF , Tamim H , Al-Hashel JY, Behbehani R , Alroughani R. Alternative diagnoses in patients referred to specialized centers for suspected MS. *Multiple Sclerosis and Related Disorders* 2017; 18;85-89. doi: 10.1016/j.msard.2017.09.016
152. Longbrake EE, Kantor D, Pawate S, Bradshaw MJ, von Geldern G, MD, Chahin S, Cross AH, Parks BJ, Rice M, **Khoury SJ**, Yamout B, Zeineddine M, Russell-Giller S, Caminero-Rodriguez A, Edwards K, Lathi E, VanderKodde D, Meador W, Berkovich R, Ge L, Bacon TE, Kister I. Effectiveness of alternative dose fingolimod for multiple sclerosis. *Neurology: Clinical Practice* 2018;8;1-6. PMC5914753. doi:10.1212
153. Buttrick T, Wang W, Yung C, Trieu K, Patel K, **Khoury SJ**, Ai X, Elyaman W. Foxo1 Promotes Th9 Cell Differentiation and Airway Allergy. *Sci Reports* 2018; 8:818. PMC5770389. doi: 10.1080/21541248.2017.1341365
154. Yamout BI, Sahraian MA, Ayoubi El N, Tamim H, Nicolas J, **Khoury SJ**, Zeineddine M. Efficacy and safety of natalizumab extended interval dosing. *Multiple Sclerosis and Related Disorders* 2018; Jul 5;24:113–6. doi: 10.1016/j.msard.2018.06.015

155. Yamout BI, El-Ayoubi NK, Nicolas J, El Kouzi Y, **Khoury SJ**, Zeineddine MM. Safety and Efficacy of Rituximab in Multiple Sclerosis: A Retrospective Observational Study. *J Immunol Res* 2018; 9084759. doi /10.1155/2018/9084759
156. Hannoun S, Baalbaki M, Haddad R, Saaybi S, El Ayoubi NK, Yamout BI, **Khoury SJ**, Hourani R. Gadolinium Effect on Thalamus and Whole Brain Tissue Segmentation in Multiple Sclerosis. *Neuroradiol* 2018; 60(11); 1167-1173. doi: 10.1007/s00234-018-2082-5
157. Regev K , Healy BC, Paul, A, Diaz-Cruz C, Mazzola MA, Raheja R, Glanz BI, Kivisäkk P, Chitnis T, Jagodic M, Piehl, F, Olsson F, Khademi M, Hauser S, Oksenberg J , **Khoury SJ**, Weiner HL , and Gandhi R. Identification of MS-specific serum miRNAs in an international multicenter study. *Neurol Neuroimmunol Neuroinflamm* 2018;5:e491. PMC6117192. doi:10.1212/NXI.0000000000000491
158. Said M, El Ayoubi N, Hannoun S, Haddad R, Saba L, Jalkh Y, Yamout BI, **Khoury SJ**. The Bayesian risk estimate at onset (BREMSO) correlates with cognitive and physical disability in patients with early multiple sclerosis. *Multiple Sclerosis and Related Disorders* 2018; 26:96-102. doi: 10.1016/j.msard.2018.09.003
159. Starossom SC, Garcia JC, Woelfle T, Romero-Suarez S, Olah M, Watanabe F, Cao L, Yeste A, Tukker JJ, Quintana FJ, Imitola J, Witzel F, Schmitz D, Morkel M, Paul F, Infante-Duarte C, **Khoury SJ**. Chi3l3 induces oligodendrogenesis in an experimental model of autoimmune neuroinflammation. *Nat Comm* 2019; 10:1-14. doi: 10.1038/s41467-018-08140-7
160. Hannoun S, Issa R, El Ayoubi NK, Haddad R, Baalbaki M, Yamout BI, **Khoury SJ**, Hourani R. Gadoterate Meglumine Administration in Multiple Sclerosis has no Effect on the Dentate Nucleus and the Globus Pallidus Signal Intensities. *Acad Radiol* 2019;26(10);e284-e289 . doi: 10.1016/j.acra.2018.11.010
161. Glatigny S, Höllbacher B, Motley SJ, Tan C, Hundhausen C, Buckner JH, Smilek D, **Khoury SJ**, Ding L, Qin T, Pardo J, Nepom GT, Turka LA, Harris KM, Campbell DJ, Bettelli E. Abatacept Targets T Follicular Helper and Regulatory T Cells, Disrupting Molecular Pathways That Regulate Their Proliferation and Maintenance. *J Immunol* 2019; 202 (5):j1801425. doi: 10.4049/jimmunol.1801425
162. Alroughani R, Akhtar S, Zeineddine M, EL Kouzi Y, El Ayoubi NK, Ahmed SF, Behbehani R, **Khoury SJ**, Al-Hashel JY, Yamout BI. Risk of relapses during pregnancy among multiple sclerosis patients. *Multiple Sclerosis and Related Disorders* 2019; 34:9-13. doi: 10.1016/j.msard.2019.06.007
163. Tamim H., Zeineddine S., Tabbara F., **Khoury S.**, Akiki Z., Khansa S., Taher A. Structure and evaluation of a residency research program in a university hospital. *BMC Medical Education* (2019) 19:406-9. doi: 10.1186/s12909-019-1858-6
164. Chehabeddine L., Al Saleh T., Baalbaki M., Saleh E., **Khoury SJ.**, Hannoun S. Cumulative administrations of gadolinium-based contrast agents: risks of accumulation and toxicity of linear vs macrocyclic agents. *Critical Reviews in Toxicology*, 2019; 49 (3): 262-269. doi: 10.1080/10408444.2019.1592109
165. Yamout B., Sahraian M., Bohlega S., Al-Jumah M., Goueider R., Dahdaleh M., Inshasi J., Hashem S., Alsharoqi I., **Khoury S.**, Alkhawajah M., Koussa S., Al Khaburi J., Almahdawi A., Alsaadi T., Slassi E., Daodi S., Zakaria M., Alroughani R. Consensus recommendations for the diagnosis and treatment of multiple sclerosis: 2019 revisions to the MENACTRIMS guidelines. *Multiple Sclerosis and Related Disorders* 2020; 37:9-13. Doi: 10.1016/j.msard.2019.06.007
166. Hala Darwish H., Farran N., Hannoun S., Tadros N., Yamout B., El Ayoubi NK., **Khoury SJ**. Serum vitamin D level is associated with speed of processing in multiple sclerosis patients. *J Steroid Biochem Mol Biol*, 2020; 200:105628. doi: 10.1016/j.jsbmb.2020.105628

167. El Najjar M., Eid C., **Khoury SJ**, Hannoun S. “No evidence of disease activity”: Is it an aspirational therapeutic goal in multiple sclerosis? *Multiple Sclerosis and Related Disorders*, 2020; 40:101935. doi:10.1016/j.msard.2020.101935
168. Iacobaeus E, Arrambide G, Amato MP, et al. Aggressive multiple sclerosis (1): Towards a definition of the phenotype. *Mult Scler* 2020;25:135245852092536–14. doi: 10.71177/1352458520925369
169. Arrambide G, Iacobaeus E, Amato MP, et al. Aggressive multiple sclerosis (2): Treatment. *Mult Scler* 2020;25(3):135245852092459–19. doi: 10.1177/1352458520924595
170. Zeinoun P, Farran N, **Khoury SJ**, Darwish H. Development, psychometric properties, and pilot norms of the first Arabic indigenous memory test: The Verbal Memory Arabic Test (VMAT). *J Clin Exp Neuropsych* 2020;381(1):1-11. doi: 10.1080/13803395.2020.1773408
171. Jaafar N, Khoueiry M, **Khoury SJ**, Makki A. Rare Case of Spinal Neurosarcoidosis with Concomitant Epidural Lipomatosis. *Case Reports in Neurological Medicine* 2021;2021. doi: 10.1155/2021/5952724
172. Mrad MF, Saba ES, Nakib L, **Khoury SJ**. Exosomes from MS subjects express EBV-derived proteins and activate monocyte-derived macrophages. *Neurol Neuroimmunol Neuroinflamm* 2021; 8(4): e1004 doi: 10.1212/NXI.0000000000001004
173. El Ayoubi N, Bou Reslan S W, Baalbaki MM, Darwish H, **Khoury SJ**. Effect of fingolimod vs interferon treatment on OCT measurements and cognitive function in RRMS. *Multiple Sclerosis and Related Disorders*, 2021; 53: 103041. doi: 10.1016/j.msard.2021.103041
174. Saba ES, Karout M, Nasralla L, Kobeissy F, Darwish H, **Khoury SJ**. Long-term cognitive deficits after traumatic brain injury associated with microglia activation. *Clin Immunol* 2021; 230 (9); 108815. doi: 10.1016/j.clim.2021.108815
175. Kaplan TB, Gopal A, Block VJ, Suskind AM, Zhao C, Polgar-Turcsanyi M, Saraceno TJ, Gomez R, Santaniello A, SUMMIT Consortium, El Ayoubi N, Cree BAC, Hauser SL, Weiner H, Chitnis T, **Khoury S**, Bove R. Challenges to Longitudinal Characterization of Lower Urinary Tract Dysfunction in Multiple Sclerosis. *Multiple Sclerosis and Related Disorders* 2022; 62: 103793. doi: 10.1016/j.msard.2022.10379
176. Roos I, Malpas C, Leray E, Casey R, Horakova D, Havrdova E, Debouverie N, Patti F, De Seze J, Izquierdo G, Eichau S, Edan G, Prat A, Girard M, Ozakbas S, Grammond P, Zephir H, Ciron J, Maillart E, Moreau T, Amato MP, Labauge P, Alroughani R, Buzzard K, Skibina O, Terzi M, Laplaud DA, Berger E, Grand'Maison F, Lebrun-Frenay C, Cartechini E, Boz C, Lechner-Scott J, Clavelou P, Stankoff B, Prevost J, Kappos L, Pelletier J, Shaygannejad V, Yamout BI, **Khoury SJ**, et al. Disease reactivation after cessation of disease-modifying therapy in relapsing-remitting multiple sclerosis. *Neurol* 2022;99:e1926-e1944. doi: 10.1212/WNL.00000000000201029
177. Zhu C, Zhou Z, Roos I, Merlo D, Kalincik T, Ozakbas S, Skibina O, Kuhle J, Hodgkinson S, Boz C, Alroughani R, Lechner-Scott J, Barnett M, Izquierdo G, Prat A, Horakova D, Havrdova E, Macdonell R, Patti F, **Khoury SJ**, et al. Comparing switch to ocrelizumab, cladribine or natalizumab after fingolimod treatment cessation in multiple sclerosis. *J Neurol Neurosurg Psych* 2022; 0:1-8. doi: 10.1136/jnnp-2022-330104
178. Hitti E, Hadid D, **Khoury SJ**, Tamim H, Makki M, Karam C. Domestic Tethers: Gender Differences in Career Paths and Domestic Responsibilities of Top-Research Medical School Graduates. *PLOS ONE* 2022 17(4):e0267288 doi:10.1371/journal.pone.0267288
179. Dahham J, Rizk R, Hiligsmann M, Daccache C, **Khoury SJ**, Darwish H, Evers S, Kremer I. The Economic and societal burden of multiple sclerosis on lebanese society: a cost-of-illness and quality of life study protocol. *Expert Review of Pharmacoeconomics & Outcomes Research* 2022, 22:5, 869-876, doi: 10.1080/14737167.2022.2008242

180. El Ayoubi N, Sabbagh HM, Bou Rjeily N, Hannoun S, **Khoury SJ**. Rate Of Retinal Layer Thinning As A Biomarker For Conversion To Progressive Disease In Multiple Sclerosis. *Neurol Neuroimmunol Neuroinflamm* 2022; 9:e200030. doi:10.1212/NXI.0000000000200030
181. Sharmin S, Malpas CB, Roos I, Diouf I, Alroughani R, Ozakbas S, Izquierdo G, Eichau S, Horakova D, Havrdova EK, Patti F, Terzi M, Boz C, Yamout B, **Khoury SJ**, Onofrij M, Lugaresi A, Altintas A, Prat A, Girard M, Duquette P, José Sá M, La Spitaleri D, Sidhom Y, Gouider R, Mrabet S, Soysal A, Turkoglu R, Amato MP, Fragoso YD, Kalincik T. Early predictors of disability in paediatric multiple sclerosis: evidence from a multi-national registry. *J Neurol Neurosurg Psych* 2022;0:1–8. doi:10.1136/jnnp-2022-329713
182. El Ayoubi NK, Moussa H, Younes A, Haddad R, **Khoury SJ**. Use of retinal optical coherence tomography to differentiate suspected neuromyelitis optica spectrum disorder from multiple sclerosis: a cross-sectional study. *Multiple Sclerosis and Related Disorders* 2022; 68; 104160. doi: 10.1016/j.msard.2022.104160
183. Signori A, Lorscheider J, Vukusic S, Trojano JM, Iaffaldano P, Hillert J, Hyde R, Pellegrini F, Magyari M, Koch-Henriksen N, Soelberg Sørensen P, Spelman T, van der Walt A, Horakova D, Havrdova E, Girard M, Eichau S, Grand'Maison F, Gerlach O, Terzi M, Ozakbas S, Skibina O, Van Pesch V, Jose Sa M, Prevost J, Alroughani R, McCombe PA, Gouider R, Mrabet S, Castillo-Trivino T, Zhu C, de Gans C, Sánchez-Menoyo JL, Yamout B, **Khoury S**, Sormani MP, Kalincik T, Butzkueven H, on behalf of the Big MS Data Network. Heterogeneity on Long-Term Disability Trajectories in Secondary Progressive MS Patients – A Latent Class Analysis from Big MS Data Network. *J Neurol Neurosurg Psych* 2023;0:1–8. doi:10.1136/jnnp-2022-329987
184. Dahham J, Hiligsmann M, Kremer I, **Khoury SJ**, Darwish H, Hosseini H, Evers S, Rizk R. The societal costs of multiple sclerosis in Lebanon: a cross-sectional study. *Expert Review of Pharmacoeconomics & Outcomes Research* 2023; 23:4, 419-430. doi: 10.1080/14737167.2023.2184802
185. Daruwalla C, Shaygannejad V, Ozakbas S, Havrdova EK, Horakova D, Alroughani R, Boz C, Patti F, Onofrij M, Lugaresi A, Eichau S, Girard M, Prat A, Duquette P, Yamout B, **Khoury SJ**, Sajedi SA, et al. Early non-disabling relapses are important predictors of disability accumulation in people with relapsing-remitting multiple sclerosis. *Mult Scler* 2023 :135245852311519. doi:10.1177/13524585231151951
186. Moradi N, Sharmin S, Malpas CB, Shaygannejad V, Terzi M, Boz C, Yamout B, **Khoury SJ**, Turkoglu R, Karabudak R, Shalaby N, Soysal A, Altıntaş A, Inshasi J, Al-Harbi T, Alroughani R and Kalincik T. External validation of a clinical prediction model in multiple sclerosis. *Mult Scler* 2023, Vol. 29(2) 261–269. doi:10.1177/13524585221136036
187. Harding-Forrester S, Roos I, Nguyen AL, Malpas CB, Diouf I, Moradi N, Sharmin S, Izquierdo G, Eichau S, Patti F, Horakova D, Kubala Havrdova E, Prat A, Girard M, Duquette P, Grand'Maison F, Onofrij M, Lugaresi A, Grammond P, Ozakbas S, Amato MP, Gerlach O, Sola P, Ferraro D, Buzzard K, Skibina O, Lechner-Scott J, Alroughani R, Boz C, Van Pesch V, Cartechini E, Terzi M, Maimone D, Ramo-Tello C, Yamout B, **Khoury SJ**, La Spitaleri D, Sa MJ, Blanco Y, Granella F, Slee M, Butler E, Sidhom Y, Gouider R, Bergamaschi R, Karabudak R, Ampapa R, Sánchez-Menoyo JL, Prevost J, Castillo-Trivino T, McCombe PA, Macdonell R, Laureys G, Van Hijfte L, Oh J, Altintas A, de Gans K, Turkoglu R, van der Walt A, Butzkueven H, Vucic S, Barnett M, Cristiano E, Hodgkinson S, Iuliano G, Kappos L, Kuhle J, Shaygannejad V, Soysal A, Weinstock-Guttman B, Van Wijmeersch B, Kalincik T. Disability accrual in primary and secondary progressive multiple sclerosis. *J Neurol Neurosurg Psych* 2023 nnp-2022-330726. doi: 10.1136/jnnp-2022-330726
188. Kalincik T, Sharmin S, Roos I, Freedman MS, Atkins H, Burman J, Macdonell R, Grigg A, Torkildsen O, Bo L, Lehman AK, Havrdova K, Krasulova E, Treny M, Kozak T, van der

- Walt A, Butzkueven H, McCombe P, Skibina O, Lechner-Scott J, Willekens B, Cartechini E, Ozakbas S, Alroughani R, Kuhle J, Patti F, Duquette P, Lugaresi A, **Khoury SJ**, Turkoglu R, Hodgkinson S, John N, Maimone D, Sa MJ, van Pesch V, Gerlach O, Laureys G, Van Hinfte L, Karabudak R, Spitaleri D, Csepany T, Gouider R, Castillo-Trivino T, Taylor B, Sharrack B, Snowden JA, and the MSBase Study Group Collaborators; and the MSBase Study Group Authors. Comparative Effectiveness of Autologous Hematopoietic Stem Cell Transplant vs Fingolimod, Natalizumab, and Ocrelizumab in Highly Active Relapsing-Remitting Multiple Sclerosis. *JAMA Neurol* 2023 doi: 10.1001/jamaneurol.2023.1184
189. Zhu C, Kalincik T, Horakova D, Zhou Z, Buzzard K, Skibina O, Alroughani R, Izquierdo G, Eichau S, Kuhle J, Patti F, Grand'Maison F, Hodgkinson S, Grammond P, Lechner-Scott J, Butler E, Prat A, Girard M, Duquette P, Macdonell RAL, Weinstock-Guttman B, Ozakbas S, Slee M, Sa MJ, Van Pesch V, Barnett M, Van Wijmeersch M, Gerlach O, Prevost J, Terzi M, Boz C, Laureys G, Van Hijfte L, Kermode AG, Garber J, Yamout B, **Khoury SJ**, Merlo D, Monif M, Jokubaitis V, van der Walt A, Butzkueven H, for the MSBase Study Group. Comparison Between Dimethyl Fumarate, Fingolimod, and Ocrelizumab After Natalizumab Cessation. *JAMA Neurol* 2023 doi:10.1001/jamaneurol.2023.1542
 190. Roos I, Hughes S, McDonnell G, Malpas CB, Sharmin S, Boz C, Alroughani R, Ozakbas S, Buzzard K, Skibina O, van der Walt A, Butzkueven H, Lechner-Scott J, Kuhle J, Terzi M, Laureys G, Van Hijfte L, John N, Grammond P, Grand'Maison F, Soysal A, Jensen AV, Rasmussen PV, Svendsen KB, Barzinji I, Nielsen HH, Sejbæk T, Prakash S, Stilund MLM, Weglewski A, Issa NM, Kant M, Sellebjerg F, Gray O, Magyari M, Kalincik T, et al. Rituximab vs Ocrelizumab in Relapsing-Remitting Multiple Sclerosis. *JAMA Neurol* 2023; doi:10.1001/jamaneurol.2023.1625
 191. Sharmin S, Roos I, Simpson-Yap S, Malpas C, Sánchez MM, Ozakbas S, Horakova D, Havrdova EK, Patti F, Alroughani R, Izquierdo G, Eichau S, Boz C, Zakaria M, Onofrij M, Lugaresi A, Weinstock-Guttman B, Prat A, Girard M, Duquette P, Terzi M, Amato MP, Karabudak R, Grand'Maison F, **Khoury SJ**, Grammond P, Lechner-Scott J, Buzzard K, Skibina O, van der Walt A, Butzkueven H, Turkoglu R, Altintas A, Maimone D, Kermode A, Shalaby N, V. Pesch V, Butler E, Sidhom Y, Gouider R, Mrabet S, Gerlach O, Soysal A, Barnett M, Kuhle J, Hughes S, Sa MJ, Hodgkinson S, Oreja-Guevara C, Ampapa R, Petersen T, Ramo-Tello C, Spitaleri D, McCombe P, Taylor B, Prevost J, Foschi M, Slee M, McGuigan C, Laureys G, V. Hijfte L, de Gans C, Solaro C, Oh J, Macdonell R, Aguera-Morales E, Bhim Singhal E, Gray O, Garber J, V. Wijmeersch B, Simu M, Triviño TC, Sanchez-Menoyo JL, Khurana D, Al-Asmi A, Al-Harbi T, Deri N, Fragoso Y, Lalive PH, Sinnige LGF, Shaw C, Shuey N, Csepany T, Sempere AP, Moore F, Decoo D, Willekens B, Gobbi C, Massey J, Hardy T, Parratt J, and Kalincik T, on behalf of the MSBase investigators. The risk of secondary progressive multiple sclerosis is geographically determined but modifiable. *Brain* 2023 Nov 2;146(11):4633-4644. doi: 10.1093/brain/awad218. PubMed PMID: 37369086; PubMed Central PMCID: PMC10629760.
 192. Chitnis T, Foley J, Ionete C, El Ayoubi NK, Saxena S, Gaitan-Walsh P, Lokhande H, Paul A, Saleh F, Weiner H, Qureshi F, Becich MJ, Rubio da Costa F, Gehman VM, Zhang F, Keshavan A, Jalaaliddini K, Ghoreyshi A, **Khoury SJ**. Clinical validation of a multi-protein, serum-based assay for disease activity assessments in multiple sclerosis. *Clin Immunol* 2023 doi:10.1016/j.clim.2023.109688
 193. Imitola J, Hollingsworth EW, Watanabe F, Olah M, Elyaman W, Starossom S, Kivissak P, **Khoury SJ**. Stat1 is an inducible transcriptional repressor of neural stem cells self-renewal program during neuroinflammation. *Front Cell Neurosci* 2023, vol 17:1156802. doi: 10.3389/fncel.2023.1156802
 194. Li Y, Saul A, Taylor B, Ponsonby AL, Simpson-Yap S, Blizzard L, Broadley S, Lechner-Scott J, Karabudak R, Patti F, Eichau S, Onofrij M, Ozakbas S, Horakova D, Kubala Havrdova E, Grand'Maison F, Alroughani R, Gerlach O, Amato MP, Altintas A, Girard M,

- Duquette P, Blanco Y, Ramo-Tello C, Laureys G, Kalincik T, **Khouri SJ**, Shaygannejad V, Etemadifar M, Singhal B, Mrabet S, Foschi M, Habek M, John N, Hughes S, McCombe P, Ampapa R, van der Walt A, Butzkueven H, de Gans K, McGuigan C, Oreja-Guevara C, Sa MJ, Petersen T, Al-Harbi T, Sempere AP, Van Wijmeersch B, Grigoriadis N, Prevost J, Gray O, Castillo-Triviño T, Macdonell R, Lugaesi A, Sajedi SA, van der Mei I. Examining the environmental risk factors of progressive-onset and relapsing-onset multiple sclerosis: recruitment challenges, potential bias, and statistical strategies. *J Neurol*. 2024, vol 271:472–485;. doi: 10.1007/s00415-023-11980-z.
195. Spelman T, Magyari M, Butzkueven H, Walt AVD, Vukusic S, Trojano M, Iaffaldano P, Horáková D, Drahota J, Pellegrini F, Hyde R, Duquette P, Lechner-Scott J, Sajedi SA, Lalive P, Shaygannejad V, Ozakbas S, Eichau S, Alroughani R, Terzi M, Girard M, Kalincik T, Grand'Maison F, Skibina O, **Khouri SJ**, Yamout B, Sa MJ, Gerlach O, Blanco Y, Karabudak R, Oreja-Guevara C, Altintas A, Hughes S, McCombe P, Ampapa R, Gans K de, McGuigan C, Soysal A, Prevost J, John N, Inshasi J, Stawiarz L, Manouchehrinia A, Forsberg L, Sellebjerg F, Glaser A, Pontieri L, Joensen H, Rasmussen PV, Sejbaek T, Poulsen MB, Christensen JR, Kant M, Stilund M, Mathiesen H, Hillert J, Registry the DMR Italian MS Registry, Swedish MS Registry, MSBase Study Group, and OFSEP The Big MS Data Network: a collaboration of the Czech MS. Predictors of treatment switching in the Big Multiple Sclerosis Data Network. *Front Neurol* 2023, 14, 1274194. <https://doi.org/10.3389/fneur.2023.1274194>
 196. Signori A, Ponzano M, Kalincik T, Ozakbas S, Horakova D, Havrdova EK, Alroughani R, Patti F, Kuhle J, Izquierdo G, Eichau S, Yamout B, **Khouri SJ**, Karabudak R, Grammond P, Duquette P, Roos I, Butzkueven H, Walt A van der, Sormani MP. Emulating randomised clinical trials in relapsing-remitting multiple sclerosis with non-randomised real-world evidence: an application using data from the MSBase Registry. *J Neurol Neurosurg Psych* 2024, jnnp-2023-332603. <https://doi.org/10.1136/jnnp-2023-332603>
 197. Yamout B, Al-Jumah M, Sahraian MA, Almalik Y, Khaburi JA, Shalaby N, Aljarallah S, Bohlega S, Dahdaleh M, Almahdawi A, **Khouri SJ**, Koussa S, Slassi E, Daoudi S, Aref H, Mrabet S, Zeineddine M, Zakaria M, Inshasi J, Gouider R, Alroughani, R. Consensus Recommendations for Diagnosis and Treatment of Multiple Sclerosis: 2023 revision of The MENACTRIMS Guidelines. *Multiple Sclerosis and Related Disorders*, 2024, 105435. <https://doi.org/10.1016/j.msard.2024.105435>
 198. Sharmin S, Roos I, Malpas CB, Iaffaldano I, Simone M, Filippi M, Havrdova EK, Ozakbas S, Morra VB, Alroughani R, Zaffaroni M, Patti F, Eichau S, Salemi G, Di Sapio A, Inglese M, Portaccio E, Trojano M, Amato MP, Kalincik T, Horakova D, Prat A, Girard M, Duquette P, Boz B, Pozzilli C, Cocco E, Gallo P, Yamout B, **Khouri SJ**, Lugaesi A, et al. Disease-modifying therapies in managing disability worsening in paediatric-onset multiple sclerosis: a longitudinal analysis of a global and national registry. *The Lancet Child & Adolescent Health* 2024. In Press [https://doi.org/10.1016/s2352-4642\(24\)00047-6](https://doi.org/10.1016/s2352-4642(24)00047-6)
 199. Spelman T, Simoneau G, Hyde R, Kuhelj R, Alroughani R, Ozakbas S, Karabudak R, Yamout BI, **Khouri SJ**, Terzi M, Boz K, Horakova D, Havrdova EK, Weinstock-Guttman B, Patti F, Altintas A, Mrabet S, Gouider R, Inshasi J, Shaygannejad V, Eichau S, Ward WL, Butzkueven H, MSBase Investigators. Comparative Effectiveness of Natalizumab, Fingolimod, and Injectable Therapies in Pediatric-Onset Multiple Sclerosis: A Registry-Based Study. *Neurology* 102, 2024, e208114. <https://doi.org/10.1212/wnl.0000000000208114>
 200. Li Y, Saul A, Taylor B, Ponsonby A-L, Simpson-Yap S, Blizzard L, Broadley S, Lechner-Scott J on behalf of Ausimmune/AusLong Investigators Group. Karabudak R, Patti F, Eichau S, Onofrij M, Ozakbas S, Horakova D, Havrdova EK, Grand'Maison F, Alroughani R, Gerlach O, Amato MP, Altintas A, Girard M, Duquette P, Blanco Y, Ramo-Tello C, Laureys G, Kalincik T, **Khouri SJ**, et al. on behalf of MSBase Examining

the environmental risk factors of progressive-onset and relapsing-onset multiple sclerosis: recruitment challenges, potential bias, and statistical strategies. *J. Neurol.* 271, 1 (2024), 472–485. doi:10.1007/s00415-023-11980-z

201. Dekeyser C, Hautekeete M, Cambron M, Pesch VV, Patti F, Kuhle J, **Khoury S**, Scott JL, Gerlach O, Lugaresi A, Maimone D, Surcinelli A, Grammond P, Kalincik T, Habek M, Willekens B, Macdonell R, Lalive P, Csepany T, Butzkueven H, Boz C, Tomassini V, Foschi M, Sánchez-Menoyo JL, Altintas A, Mrabet S, Iuliano G, Sa MJ, Alroughani R, Karabudak R, Aguera-Morales E, Gray O, Gans K de, Walt A van der, McCombe PA, Deri N, Garber J, Al-Asmi A, Skibina O, Duquette P, Cartechini E, Spitaleri D, Gouider R, Soysal A, Hijfte LV, Slee M, Amato MP, Buzzard K, Laureys G. Routine CSF parameters as predictors of disease course in multiple sclerosis: an MSBase cohort study. *J Neurol Neurosurg Psychiatry* 2024;0:1–11. doi:10.1136/jnnp-2023-333307
202. Spelman T, Eichau S, Alroughani R, Ozakbas S, **Khoury SJ**, Patti F, Havrdova EK, Boz C, Terzi M, Kuhle J, Grammond P, Lechner-Scott J, Gray O, Amato MP, Laureys G, Shaygannejad V, Hyde R, Wang H, Bozin I, Belviso N, Quan C, Zeng F, van der Walt A, Butzkueven H, and the MSBase Study Group. Comparative effectiveness of dimethyl fumarate versus non-specific immunosuppressants: real-world evidence from MSBase. *MSJ-ECT* 2024;10(2). doi: 10.1177/20552173241247182
203. Dahham J, Hiligsmann M, Kremer I, **Khoury SJ**, Darwish H, Hosseini H, Evers S, Hallit S, Rizk R. Health-related Quality of Life and Utilities among Lebanese Patients with Multiple Sclerosis: A Cross-Sectional Study. *MSARD* 2024 Jun; 86:105635. doi:10.1016/j.msard.2024.105635
204. Zeineddine M, Al-Roughani R, Ahmed SF, **Khoury SJ**, El-Ayoubi N, Al-Mahdawi A, Al-Khabouri J, Al-Asmi A, Chentouf A, Inshasi J, Gouider R, Mrabet S, Shalaby N, Massouh J, Dimasi F, Boumediene F, Yamout B. Safety and Effectiveness of Disease Modifying Therapies after Switching from Natalizumab. *Mult Scler J* 2024 Jul;30(8):1026-1035, doi: 10.1177/13524585241261565
205. Roos I, Sharmin S, Malpas C, Ozakbas S, Lechner-Scott J, Hodgkinson S, Alroughani R, Eichau Madueño S, Boz C, van der Walt A, Butzkueven H, Buzzard K, Skibina O, Foschi M, Grand'Maison F, John N, Grammond P, Terzi M, Prévost P, Barnett M, Laureys G, Van Hijfte L, Sanchez-Menoyo JL, Yolanda Blanco Y, Oh J, McCombe P, Ramo Tello C, Soysal, Alexandre Prat A, Duquette P, Yamout BI, **Khoury SJ**, van Pesch V, Macdonell R, Sá MJ, Slee M, Kuhle J, Maimone D, Spitaleri DLA, Willekens B, Al Asmi A, Tallantyre E, Robertson NP, Coles A, Brown JW and Kalincik. On behalf of the MSBase Study Group. Effectiveness of cladribine compared to fingolimod, natalizumab, ocrelizumab and alemtuzumab in relapsing-remitting multiple sclerosis. *Mult Scler J* 2024;0(0). doi:10.1177/13524585241267211
206. Lal AP, Foong YC, Sanfilippo PG, Spelman T, Rath L, Levitz D, Fabis-Pedrini M, Foschi M, Habek M, Kalincik T, Roos I, Lechner-Scott J, John N, Soysal A, D'Amico E, Gouider R, Mrabet S, Gross-Paju K, Cárdenas-Robledo S, Moghadas AN, Sa MJ, Gray O, Oh J, Reddel S, Ramanathan S, Al-Harbi T, Altintas A, Hardy TA, Ozakbas S, Alroughani R, Kermode AG, Surcinelli A, Laureys G, Eichau S, Prat A, Girard M, Duquette P, Hodgkinson S, Ramo-Tello C, Maimone D, McCombe P, Spitaleri D, Sanchez-Menoyo JL, Yetkin MF, Baghbanian SM, Karabudak R, Al-Asmi A, Jakob GB, **Khoury SJ**, Etemadifar M, Pesch V van, Buzzard K, Taylor B, Butzkueven H, Walt AV der. A multi-centre longitudinal study analysing multiple sclerosis disease-modifying therapy prescribing patterns during the COVID-19 pandemic. *J. Neurol.* 1–12 (2024). doi:10.1007/s00415-024-12518-7.
207. El Ayoubi NK, Ismail A, Fahd F, Younes L, Chakra NA, **Khoury SJ**. Retinal optical coherence tomography measures in multiple sclerosis: a systematic review and meta-analysis. *Ann Clin Transl Neurol* 2024. doi: 10.1002/acn3.52165

208. Kreiter D, Kalincik T, Hupperts R, Pattie F, Spitalerig D, Foschi M, Surcinelli A, Maimone D, Yamout B, **Khoury SJ**, Lechner-Scott J, Ozakbas S, Gerlach O, on behalf of the MSBase Study Group. Effectiveness of disease-modifying treatment on spinal cord lesion formation in relapse-onset multiple sclerosis. An MSBase registry study. *CNS Drugs* 2024; 38: 921-930 doi:0.1007/s40263-024-01115-x
209. De Brouwer E, Becker T, Werthen-Brabants L, Dewulf P, Iliadis D, Dekeyser C, Laureys G, Van Wijmeersch B, Popescu V, Dhaene T, Deschrijver D, Waegeman W, De Baets B, Stock M, Horakova D, Patti F, Izquierdo G, Eichau S, Girard M, Prat A, Lugaresi A, Grammond P, T Kalincik T, Alroughani R, Grand'Maison F, Skibina O, Terzi M, Lechner-Scott J, Gerlach O, **Khoury SJ**, Cartechini E, Van Pesch V, Sa MJ, Weinstock-Guttman B, Blanco Y, Ampapa R, Spitaleri D, Solaro C, Maimone D, Soysal A, Iuliano G, Gouider R, Castillo-Triviño T, Sanchez-Menoyo JL, Laureys G, van der Walt A, Oh J, Aguera-Morales E, Altintas A, Al-Asmi A, de Gans K, Fragoso Y, Csepany T, Hodgkinson S, Deri N, Al-Harbi T, Taylor B, Gray O, Lalive P, Rozsa C, McGuigan C, Kermode A, Sempere AP, Mihaela S, Simo M, Hardy T, Decoo D, Hughes S, Grigoriadis N, Sas A, Vella N, Moreau Y, Peeters L. Machine-learning-based prediction of disability progression in multiple sclerosis: An observational, international, multi-center study. *PLOS Digit Health* 2024; 3(7): e0000533. doi:10.1371/journal.pdig.0000533
210. Yaktine N, Fares S, **Khoury SJ**, Darwish H. Psychometric validation of the Arabic multiple sclerosis resiliency scale: Uncovering resilience factors in Lebanese MS patients for clinical and research advancements. *eNeurologicalSci* 2024; 34:100489. doi:10.1016/j.ensci.2023.100489
211. Siriratnam P, Huda S, Van Der Walt A, Sanfilippo PG, SharminVS, Foong YC, Yeh WZ, Zhu C, **Khoury SJ**, Csepany T, Willekens B, et al. Prevalence of progression independent of relapse activity and relapse-associated worsening in patients with AQP4-IgG positive NMOSD. *Neurol* 2024;103:e209940. doi:10.1212/WNL.0000000000209940
212. Siriratnam P, Sanfilippo P, van der Walt A, Sharmin S, Foong YC, Yeh WZ, Zhu C, **Khoury SJ**, Csepany T, Willekens B, Etemadifar M, Ozakbas S, Nytrova P, Altintas A, Al-Asmi A, Yamout B, Laureys G, Patti F, Simo M, Surcinelli A, Foschi M, McCombe PA, Alroughani R, Sánchez-Menoyo JL, Turkoglu R, Soysal A, Lechner Scott J, Kalincik T, Butzkueven H, Jokubaitis V, Huda S, Monif M. Predictors of relapse risk and treatment response in AQP4-IgG positive and seronegative NMOSD: A multicentre study. *J Neurol Neurosurg Psychiatry* 2024; 0:1–9. doi:10.1136/jnnp-2024-334090
213. Machtoub D, Fares C, Sinan H, Al Hariri M, Nehme R, Chami J, Joukhdar R, Tcheroyan R, Adib S, **Khoury SJ**. Factors affecting fatigue progression in multiple sclerosis patients. *Scient Rep* (2024) 14:31682. doi:10.1038/s41598-024-80992-0
214. D'hondt R, Dedja K, Aerts S, Van Wijmeersch B, Kalincik T, Reddel S, Havrdova EK, Lugaresi A, Weinstock-Guttman B, Mrabet S, Lalive P, Kermode AG, Ozakbas S, Patti F, Prat A, Tomassini V, Roos I, Alroughani R, Gerlach O, **Khoury SJ**, van Pesch V, Sa MS, Prevost J, Spitaleri D, McCombe P, Solaro C, van der Walt A, Butzkueven H, Laureys G, Sanchez-Menoyo JL, Gans K, Al-Asmi A, Deri N, Csepany T, Al-Harbi T, Carroll WM, Rozsa C, Singhal B, Hardy TA, Ramanathan S, Peeters L, Vens C, the MSBase Study Group. Explainable time-to-progression predictions in multiple sclerosis. *Computer Methods and Programs in Biomedicine* (2025). doi:10.1016/j.cmpb.2025.108624
215. Toscano S, Spelman T, Ozakbas S, Alroughani R, Chisari CG, Fermo SL, Prat A, Girard M, Duquette P, Izquierdo G, Eichau S, Grammond P, Boz C, Kalincik T, Blanco Y, Buzzard K, Skibina O, Sa MJ, van der Walt A, Butzkueven H, Terzi M, Gerlach O, Grand'Maison F, Foschi M, Surcinelli A, Barnett M, Lugaresi A, Onofrij M, Yamout B, **Khoury SJ**, et al. First-year treatment response predicts the following 5-year disease course in patients with Relapsing-Remitting Multiple Sclerosis. *Neurotherapeutics* (2025) 22(2):e00552. doi:10.1016/j.neurot.2025.e00552

216. Müller J, Sharmin S, Lorscheider J, Horakova D, Havrdova EK, Eichau S, Patti F, Grammond P, Buzzard K, Skibina O, Prat A, Girard M, Grand'Maison F, Alroughani R, Lechner-Scott J, Spitaleri D, Barnett M, Cartechini E, Sa MJ, Gerlach O, van der Walt A, Butzkueven H, Prevost J, Castillo-Triviño T, Yamout B, **Khoury SJ**, Yaldizli O, Derfuss T, Granziera C, Kuhle J, Kappos L, Roos I, Kalincik T, for the MSBase Study Group. Treatment De-escalation in Relapsing-Remitting Multiple Sclerosis: An Observational Study. *CNS Drugs* (2025) 39:403–416. Doi: 10.1007/s40263-025-01164-w
217. El Ayoubi NK, Ismail A, Sader G, Chakra NA, El Ahdab J, **Khoury SJ**. Retinal Optical Coherence Tomography longitudinal measures as prognostic biomarkers in multiple sclerosis: Systematic Review and Meta-analysis. *Neurol Neuroimmunol Neuroinflamm* (2025)12:e200416. doi:10.1212/NXI.0000000000200416
218. El Ayoubi NK, Bal MN, Metri N, El Sammak S, Baalbaki M, **Khoury SJ**. Slower retinal thinning over a year predicts continuous NEDA status at follow up in Multiple Sclerosis: a longitudinal OCT study. *MSJ* (2025) 31 (7) doi: 10.1177/13524585251332499
219. Müller JJ, Sharmin S, Lorscheider J, Ozakbas S, Karabudak R, Horakova D, Weinstock-Guttman B, Shaygannejad V, Etemadifar M, Alroughani R, Patti F, Eichau S, Prat A, Lugaresi A, Tomassini V, Kermode AG, Amato MP, Turkoglu R, Altintas A, Buzzard K, Soysal A, van derWalt A, Butzkueven H, Blanco Y, Gerlach O, **Khoury SJ**, Barnett M, John N, Lechner-Scott J, Foschi M, Surcinelli, van Pesch, Prevost J, Sa MJ, Maimone D, D'hooghe M, Hughes S, Hodgkinson S, McGuigan C, Cartechini E, Taylor B, Spitaleri , Slee M, McCombe P, Yamout B, Benkert P, Kuhle J, Ludwig Kappos L, Roos I, Kalincik T, PGCertBiostat and the MSBase Study Group. Standardized Definition of Progression Independent of Relapse Activity (PIRA) in Relapsing-Remitting Multiple Sclerosis. *JAMA Neurol*. In Press. doi:10.1001/jamaneurol.2025.0495
220. El Ayoubi NK, Fahd F, Tamim H, Hannoun S, Bal M, El-Hallak E, **Khoury SJ**. Comparative effect of standard versus extended interval dosing of Rituximab or Ocrelizumab in multiple sclerosis. *Ann Clin Trans Neurol* (2025). 0:1-11 doi: 10.1002/acn3.70142
221. Yamout B, Al-Roughani R, Ahmed SF, Al-Mahdawi A, **Khoury S**, El-Ayoubi N, Inshasi J, Al-Khabouri J, Al-Asmi A, Gouider R, Aljarallah S, Alkhawajah N, Al Malik Y, Abulaban A, Makkawi S, Khojah O, El-Hajj T, Massouh M, AlSalamat H, Dimassi H, Al-Hajje A, Salameh P, Boumediene F, Zeineddine M. The Comparative Effectiveness of Natalizumab and Anti-CD20 Monoclonal Antibodies in Relapsing-Remitting Multiple Sclerosis: A Real-World Propensity-Score Matched Study. *J Neurol Neurosurg Psychiatry* (2025)0:1–7. doi:10.1136/jnnp-2024-335704
222. Jokubaitis VG, Al-Roughani, Altintas A, Eichau S, Hughes S, Willekens B, Horakova D, Havrdova EK, et al. Four years on: Pregnancy and birth outcomes reported in the MSBase pregnancy, neonatal outcomes, and Women's Health Registry (2020–2024). *MSJ* (2025). doi: 10.1177/13524585251349125
223. Fissolo N, Schaedelin S, Villar LM, Lünemann JD, Correale J, Rejdak K, Schwab N, Vilaseca A, Held F, García-Merino A, Bittner S, Trojano M, Furlan R, Tumani H, Pérez-Miralles F, Rosenstein I, Galimberti D, Álvarez-Bravo G, Thouvenot E, Llufríu S, **Khoury SJ**, Hoepner R, Martínez-Yélamos S, Hegen H, Drulovic J, Téllez-Lara N, Khalil M, Oechtering J, Pérez-Sempere Á, Rodríguez-Antigüedad A, Enrique-Martínez J, Strijbis E, Killestein J, Eichau S, Colombo E, Schaller-Nagengast J, Midaglia L, Sánchez-López AJ, Monreal E, Chan A, Paul F, Rovira ., Tintoré M, Lycke J, Zipp F, Hemmer B, Kuhle J, Montalban X, Comabella M, Group RS, Zettl UK, Falk S, Gutiérrez L, Gasior M, González JLV, Ferrer R, Quiroga-Varela A, Bachhuber F. Costa-Frossard L, 2025. Prognostic Factors for Multiple Sclerosis Symptoms in Radiologically Isolated Syndrome. *JAMA Neurol*. 82. doi: 10.1001/jamaneurol.2025.1481

224. Zhu C, Zhou C, Kalincik T, Roos I, Buzzard K, Skibina O, Alroughani R, Kuhle J, Girard M, Grammond P, Lechner-Scott J, Gerlach O, John N, McCombe P, Macdonell R, van Pesch V, Laureys G, Prevost J, Horakova D, Havrdova EK, Castillo-Trivino T, Ramo-Tello C, Blanco Y, Meca-Lallana JE, Lugaresi A, Tomassini V, Cartehini E, Amato MP, Spitaleri D, Patti F, Maimone D, Foschi M, Surcinelli A, D'Amico E, Yamout B, **Khoury SJ**, Sa MJ, Boz C, Ozakbas S, Weinstock-Guttman B, Merlo D, monif M, Jokubaitis VG, van der Walt A, Butzkueven H. Persistent progression independent of relapse activity in multiple sclerosis. *Brain Communications* 2025. doi: 10.1093/braincomms/fcaf306
225. Roberts JI, Sharmin S, Horakova D, Havrdova EK, Ozakbas S, Lugaresi A, Tomassini V, Alroughani R, Buzzard K, Skibina O, Boz C, Turkoglu R, Maimone D, Yamout B, **Khoury SJ**, Spitaleri D, Lechner-Scott J, Girard M, Duquette P, Al-Asmi A, Ampapa R, Foschi M, Surcinelli A, Patti F, Van Pesch V, Ramo-Tello C, Sánchez-Menoyo JL, Altintas A, Grammond P, Cartechini E, Csepany T, Laureys G, Willekens B, Roos I, Kalincik T. Corticosteroid treatment of multiple sclerosis relapses is associated with lower disability worsening over 5 years. *J Neurol Neurosurg Psychiatry* (2025) 0:1–9. doi:10.1136/jnnp-2025-336343
226. Pirmani A, De Brouwer E, Arany A, Oldenhof M, Passemiers A, Faes A, Kalincik T, Ozakbas S, Gouider R, Willekens B, Horakova D, Havrdova EK, Patti F, Prat A, Lugaresi A, Tomassini V, Grammond P, Cartechini E, Roos I, Boz C, Alroughani R, Amato MP, Buzzard K, Lechner-Scott J, Guimarães J, Solaro C, Gerlach O, Soysal A, Kuhle J, Sanchez-Menoyo JL, Spitaleri D, Csepany T, Van Wijmeersch B, Ampapa R, Prevost J, **Khoury SJ**, Van Pesch V, John N, Maimone D, Weinstock-Guttman B, Laureys G, et al. Personalized federated learning for predicting disability progression in multiple sclerosis using real-world routine clinical data. *NPJ digital medicine* (2025) doi: 10.1038/s41746-025-01788-8
227. Hannoun S, Fayad G, El Ayoubi NK, **Khoury SJ**. The effect of lesion filling on brain age estimation in multiple sclerosis. *BMC Méd. Imaging* **25**, 356 (2025).doi: 10.1186/s12880-025-01897-6