

## Representative publications - Prof Nicholas R.J. Gascoigne

Wu, L., Brzostek, J., Sakthi Vale, P.D., Wei, Q., Koh, C.K.T., Ong, J.X.H., Wu, L.-z., Tan, J.C., Chua, Y.L., Yap, J., Song, Y., Tan, V.J.Y., Tan, T.Y.Y., Lai, J., MacAry, P.A., and Gascoigne, N.R.J. (2023). CD28-CAR T-cell activation through FYN kinase signaling rather than LCK enhances therapeutic performance. **Cell Reports Medicine** 4: 100917, February 21, 2023. <https://doi.org/10.1016/j.xcrm.2023.100917>

Deng, L., Wojciech, L., Png, C.W., Kioh, Y.Q.D., Ng, G.C., Chan, E.C.Y., Zhang, Y., Gascoigne, N.R.J., and Tan, K.S.W. (2023). Colonization with ubiquitous protist *Blastocystis* ST1 ameliorates DSS-induced colitis and promotes beneficial microbiota and immune outcomes. **npj Biofilms and Microbiomes** 2023 Apr 25;9(1):22. doi: 10.1038/s41522-023-00389-1.

Tang, J., Jia, X., Li, J., Dong, J., Wang, J., Li, W., Zhu, Y., Hu, Y., Hou, B., Lin, C., Cong, Y., Ren, T., Yan, C., Yang, H., Lai, Q., Zheng, H., Bao, Y., Gautam, N., Wang, H.-R., Xu, B., Chen X.L.\*, Li, Q.\* Gascoigne, N.R.J.\*, and Fu, G.\* (2023). Themis suppresses the effector function of CD8+ T cells in acute viral infection. **Cell. Molec. Immunol.** 2023 May;20(5):512-524. (\*Joint Corresponding Authors). doi: 10.1038/s41423-023-00997-z

Wu, L.-z., Balyan, R., Brzostek, J., Zhao, X., and Gascoigne, N.R.J. (2023). Time required for commitment to T cell proliferation depends on TCR affinity and cytokine response. **EMBO Rep.** Jan 9; 24: e54969. DOI:10.15252/embr.202254969

Liu, Y., Cong, Y., Niu, Y., Yuan, Y., Tan, F., Lai, Q., Hu, Y., Hou, B., Li, J., Lin, C., Zheng, H., Dong, J., Tang, J., Chen, Q., Brzostek, J., Zhang, X., Chen, X.L., Wang, H.-R., Gascoigne, N.R.J., Xu, B., Lin, S.-H., Gu, F. (2022). Themis is indispensable for IL-2 and IL-15 signaling. **Sci. Signaling.** 15: eabi9983. doi: 10.1126/scisignal.abi9983

Wu, L., Brzostek, J., Sankaran, S., Wei, Q., Yap, J., Tan, T.Y.Y., Lai, J., MacAry, P.A., and Gascoigne, N.R.J. (2021). Targeting CAR to the peptide-MHC complex reveals distinct signaling compared to that of TCR in a Jurkat T cell model. **Cancers**, 13(4), 867; doi.org/10.3390/cancers13040867

Prasad, M., Brzostek, J., Gautam, N., Balyan, R., Rybakin, V., and Gascoigne, N.R.J. (2021). Themis regulates metabolic signaling and effector functions of CD4+ T cells by controlling NFAT nuclear translocation. **Cell. Molec. Immunol.** 18: 2249-2261. <https://doi.org/10.1038/s41423-020-00578-4>

Wei, Q., Brzostek, J., Sankaran, S., Casas, J., Hew, L.S.-Q., Yap, J., Zhao, X., Wojciech, L., and Gascoigne, N.R.J. (2020). Lck bound to coreceptor is less active than free Lck. **Proc. Natl. Acad. Sci. USA** 117: 15809-15817. [www.pnas.org/cgi/doi/10.1073/pnas.1913334117](http://www.pnas.org/cgi/doi/10.1073/pnas.1913334117)

Brzostek, J., Gautam, N., Zhao, X., Chen, E.W., Mehta, M., Tung, D.W.H., Chua, Y.L., Yap, J., Cho, S.H., Sankaran, S., Rybakin, V., Fu, G., and Gascoigne, N.R.J. (2020). T cell receptor and cytokine signal integration in CD8+ T cells is mediated by the protein Themis. **Nature Immunol.** 21: 186-198. doi: 10.1038/s41590-019-0570-3

Zhao, X., Sankaran, S., Yap, J., Too C.T., Ho, Z.Z., Dolton, G., Legut, M., Ren, E.C., Sewell, A.K., Bertoletti, A., MacAry, P.A., Brzostek, J., and Gascoigne, N.R.J. (2018). Non-stimulatory peptide-MHC enhances human T-cell antigen-specific responses by amplifying proximal TCR signaling. **Nature Commun.** 9: 2716. DOI:10.1038/s41467-018-05288-0

Fu, G., Rybakin, V., Brzostek, J., Paster, W., Acuto, O., and Gascoigne, N.R.J. (2014). Fine-

tuning T cell receptor signaling to control T cell development. **Trends Immunol.** 35: 311-318

Kong, K.-F., Fu, G., Zhang, Y., Casas, J., Canonigo-Balencio, A.J., Becart, S., Kim, G., Yates, J.R. 3rd, Kronenberg, M., Gascoigne, N.R.J.\*, and Altman, A.\* (2014). Protein kinase C-eta controls CTLA-4-mediated regulatory T cell function. **Nature Immunol.** 15: 465-472. (\*Co-senior authorship)

Fu, G., Casas, J., Rigaud, S., Rybakin, V., Lambolez, F., Brzostek, J., Hoerter, J.A.H., Paster, W., Acuto, O., Cheroutre, H., Sauer, K., and Gascoigne, N.R.J. (2013). Themis sets the signal threshold for positive and negative selection in T-cell development. **Nature**, 504: 441–445

Hoerter, J.A.H., Brzostek, J., Artyomov, M.N., Abel, S.M., Casas, J., Rybakin, V., Ampudia, J., Lotz, C., Connolly, J.M., Chakraborty, A.K., Gould, K.G., and Gascoigne, N.R.J. (2013). Coreceptor affinity for MHC defines peptide specificity requirements for TCR interaction with coagonist peptide-MHC. **J. Exp. Med.** 210: 1807-1821

Paster, W, Brockmeyer, C, Fu, G, Simister, P, de Wet, B, Martinez-Riano, A, Hoerter, JAH, Feller SM, Wuelfing, C, Gascoigne, NRJ and Acuto, O (2013) GRB2-mediated recruitment of THEMIS to LAT is essential for thymocyte development. **J. Immunol.** 190: 3749-3756.

Rybakin, V and Gascoigne, NRJ (2012) Negative selection assay based on stimulation of T cell receptor transgenic thymocytes with peptide-MHC tetramers. **PLoS ONE**, 7:e43191.

Fu, G, Hu, J, Niederberger-Magnenat, N, Rybakin, V, Casas, J, Yachi, PP, Feldstein, S, Ma, B, Hoerter, JAH, Ampudia, J, Rigaud, S, Lambolez, F, Gavin, AL, Sauer, K, Cheroutre, H, and Gascoigne, NRJ (2011) Protein Kinase C  $\eta$  is required for T cell activation and homeostatic proliferation. **Science Signaling**, 4: ra84.

Rybakin, V, Clamme, J-P, Ampudia, J, Yachi, PP, and Gascoigne, NRJ (2011) CD8 $\alpha\alpha$  and – $\alpha\beta$  isotypes are equally recruited to the immunological synapse through their ability to bind MHC class I. **EMBO Rep.**, 12:1251-1256.

Gascoigne, NRJ and Palmer, E (2011) Signaling in thymic selection. **Curr. Op. Immunol.** 23: 207-212.

Brockmeyer, C, Paster, W, Pepper, D, Tan, CP, Trudgian, DC, McGowan, S, Fu, G, Gascoigne, NRJ, Acuto, O, and Salek, M (2011) T cell receptor (TCR)-induced tyrosine phosphorylation dynamics identifies THEMIS as a new TCR signalosome component. **J. Biol. Chem.** 286: 7535- 7547.

Gascoigne, NRJ, Zal, T, Yachi, PP, and Hoerter, JAH (2010) Co-receptors and recognition of self at the Immunological Synapse. **Curr. Top. Microbiol. Immunol.** 340: 171-189.

Fu, G and Gascoigne, NRJ (2009) Multiplexed labeling of samples with cell tracking dyes facilitates rapid and accurate internally controlled calcium flux measurement by flow cytometry. **J. Immunol. Meth.** 350:194-199.

Fu, G, Vallée, S, Rybakin, V, McGuire, MV, Ampudia, J, Brockmeyer, C, Salek, M, Fallen, PR, Hoerter, JAH, Munshi, A, Huang, YH, Hu, J, Fox, HS, Sauer, K, Acuto, O, and Gascoigne, NRJ (2009) Themis controls thymocyte selection through regulation of T cell

receptor-mediated signaling. **Nature Immunol.** 10: 848-856.

Gascoigne, NRJ, Ampudia, J, Clamme, J-P, Fu, G, Lotz, C, Mallaun, M, Niederberger, N, Palmer, E, Rybakin, V, Yachi, PP, and Zal, T (2009) Visualizing intermolecular interactions in T cells. **Curr. Top. Microbiol. Immunol.** 334: 31-46.

Singleton, KL, Roybal, KT, Sun, Y, Fu, G, Gascoigne, NRJ, van Oers, NSC, and Wülfing, C (2009) The spatiotemporal patterning of T cell activation is highly diverse. **Science Signaling**, 2, ra15.

Gascoigne, NRJ (2008) Do T cells need endogenous peptides for activation? **Nature Rev. Immunol.** 8: 895-900.

Yachi, PP, Lotz, C, Ampudia, J, and Gascoigne, NRJ (2007) T cell activation enhancement by endogenous pMHC acts for both weak and strong agonists but varies with differentiation state. **J. Exp. Med.** 204: 2747-2757.

Daniels, MA, Teixeiro, E, Gill, J, Hausmann, B, Roubaty, D, Holmberg, K, Werlen, G, Holländer, G, Gascoigne, NRJ, and Palmer, E (2006) Thymic selection threshold defined by compartmentalization of Ras/MAPK signalling. **Nature**, 444: 724-729.