



MRC Centre Grant (Lee TH, **Sutton BJ** *et al.*)

MRC & Asthma UK Centre in Molecular Mechanisms of Asthma

Jan. 2011 – Feb. 2016      £2.24M      Ref: G1000758

BBSRC Project Grant (**Sutton BJ**)

Structural studies to advance understanding of IgM and its complement and receptor interactions

Nov. 2012 – Oct. 2015      £468,367      Ref: BB/K006142/1

Wellcome Trust Capital Award in Biomedical Science (**Sutton BJ**, Conte MR *et al.*)

King's Centre for Biomolecular Spectroscopy

Oct. 2010 – Sept. 2015      £1.69M      Ref: 085944

Asthma UK Project Grant (**Sutton BJ**, Holdom, MD, Bevil AJ & Williams G)

Structure-based discovery of small-molecule IgE inhibitors

May 2009 – Aug. 2012      £199,765      Ref: 08/039

MRC/EPSRC Project Grant (Spivey AC, **Sutton BJ**, Bevil, AJ & Leatherbarrow RJ)

A generic approach to disrupting protein-protein interactions – application to the hIgE-FcεRI interface

June 2007 – Mar. 2011      £670,112      Ref: G0601116

MRC Centre Grant (Lee TH, **Sutton BJ** *et al.*)

MRC & Asthma UK Centre in Molecular Mechanisms of Asthma

Feb. 2006 – Jan. 2011      £1.51M      Ref: G0400503

BBSRC Project Grant (**Sutton BJ**)

Immunoglobulin Y: an IgG-like antibody with an IgE-like structure?

Feb. 2006 – Jan. 2009      £292,786      Ref: BB/D011418/1

MRC Programme Grant (**Sutton BJ**, Gould HJ, Bevil AJ & Heintzmann R)

Exploring, understanding, intervening in IgE-dependent mechanisms in allergic disease and asthma

Oct. 2006 – Dec. 2011      £2.32M      Ref: G0501494

Wellcome Trust Programme Grant (**Sutton BJ**, Gould HJ & McDonnell JM)

Structural and functional studies of CD23 signalling in IgE regulation and allergic disease

Apr. 2005 - May 2012      £817,307      Ref: 076343

Asthma UK Project Grant (**Sutton BJ**, Holdom, MD & Bevil AJ)

Conformational change in IgE as a target for small molecule design

Oct. 2005 – Jan. 2008      £142,970      Ref: 05/061

MRC Project Grant (**Sutton BJ**, Gould HJ & McDonnell JM)

Structural studies of protein-protein interactions of the IgE network

June 2004 – Sept. 2007      £241,044      Ref: G0200486

MRC Project Grant (**Sutton BJ** & Gould HJ)

Domain folding in IgE

Mar. 2002 – Feb. 2005      £250,698      Ref: G0000242

BBSRC Project Grant (**Sutton BJ** & Gould HJ)

Identification of the minimal functional fragment of IgE with high affinity binding for its receptor

June 2001 - May 2004      £207,696      Ref: 29/B13498

Wellcome Trust Programme Grant (**Sutton BJ** & Gould HJ)

The role of CD23 in the commitment of B cells to IgE synthesis

Jan. 2000 - Dec. 2004      £833,554      Ref: 038924

**Summary of key scientific experience:**

I trained in chemistry for my first degree, with research experience in ESR and NMR spectroscopy, moving into X-ray protein crystallography for my doctoral work, and now have over forty years' experience of structural biology. My first publications concerned the use of spin-labels to probe the structure and mobility of antibody combining sites, and I then applied X-ray crystallography to determine the structure of the receptor-binding Fc region of IgG, at the same time initiating work on the bacterial metallo- $\beta$ -lactamases that are responsible for bacterial resistance to antibiotics. The structure of the *B. cereus* zinc-dependent enzyme was one of the first of this class to be determined, and I worked with SmithKline Beecham (now GSK) on inhibitor design based upon this structure.

At King's I began working on the proteins of the IgE antibody network involved in allergy, and determined the crystal structure of IgE-Fc and its receptor complexes, employing various biophysical techniques such as SPR to study the kinetics and thermodynamics of these interactions. This led us to propose a mechanism of receptor engagement involving conformational change in the IgE molecule, which in turn led to a novel, allosteric approach to blocking this interaction. We also solved the structures of several complexes between IgE-Fc and anti-IgE antibody Fabs, including that of the clinically-approved monoclonal antibody omalizumab, revealing its mechanism of action. We are pursuing structure-based small-molecule drug design collaboratively with a pharmaceutical industry partner.

I have also investigated auto-antibody recognition of auto-antigens and determined the first ever structures of auto-antibody/antigen complexes in human rheumatoid arthritis. This revealed an unexpected "non-classical" use of the antigen-binding site, suggesting a mechanism for induction of such auto-antibodies. We also showed how bacterial "superantigens" bind to antibodies and enhance antibody responses, which may be relevant not only in auto-immune but also in allergic disease. We recently discovered this same "superantigen-like" recognition, this time of a potent grass pollen allergen by IgE, implicating a hitherto unrecognised "superallergen" mechanism of allergic reaction with consequences for design of therapeutic hypoallergenic molecules.

We are also pursuing structural studies of avian IgY antibodies, as well as human IgM, in order to understand the evolution of antibody structure and function, and in particular the unique properties of IgE. Most recently we have begun the first structural studies and investigation of the role of human IgD antibodies in allergic disease.

**Publications:**

Peer-reviewed journal papers: 175; H-index (discipline-related): 56; Citations: >11,500

Book chapters: 7

Current patents: 2

See separate list.

## Articles in peer-reviewed journals

The crystal structure of human IgD-Fc reveals unexpected differences with other antibody isotypes. Davies, A., Bui, T.T., Pacheco-Gómez, R., Vester, S.K., Beavil, A.J., Gould, H.J., **Sutton, B.J.** & McDonnell, J.M. *Proteins: Structure, Function, and Bioinformatics*, **93**, 786-800, 2025. (DOI: 10.1002/prot.26771)

Structure and activity of a phosphinothricin N-acetyltransferase (PSPTO\_3321) from *Pseudomonas syringae* pv. tomato DC3000. Davies, A.M., Trentham, D., **Sutton, B.J.** & Brown, P.R. *Biochem. Biophys. Res. Comm.*, 755:151539, 2025. (DOI: 10.1016/j.bbrc.2025.151539)

Revealed at last: Structure of the antibody-receptor complex common to all IgE-mediated allergic hypersensitivity reactions. **Sutton, B.J.** *Science Signaling*, 17 (866):eadu0382, 2024. (DOI: 10.1126/scisignal.adu0382)

The evolution of flexibility and function in the Fc domains of IgM, IgY, and IgE. Calvert, R.A., Nyamboya, R.A., Beavil, A.J. & **Sutton, B.J.** *Front. Immunol.*, 15:1389494, 2024. (DOI: 10.3389/fimmu.2024.1389494)

Expanding the anti-Phl p 7 antibody toolkit: an anti-idiotypic nanobody inhibitor. Vester, S.K., Davies, A.M., Beavil, R.L., Sandhar, B.S., Beavil, A.J., Gould, H.J., **Sutton B.J.** & McDonnell, J.M. *Antibodies*, **12**, 75, 2023. (DOI: 10.3390/antib12040075)

Multi-faceted immunoglobulin M meets its elusive receptor. **Sutton, B.J.** *Nature Struct. Molec. Biol.*, **30**, 866-869, 2023. (DOI: 10.1038/s41594-023-01030-7)

Crystal structures of the human IgD Fab reveal insights into C<sub>H</sub>1 domain diversity. Davies, A.M., Beavil, R.L., Barbolov, M., Sandhar, B.S., Gould, H.J., Beavil, A.J., **Sutton, B.J.** & McDonnell, J.M. *Mol. Immunol.*, **159**, 28-37, 2023. (DOI: 10.1016/j.molimm.2023.05.006)

IgE, IgE Receptors and Anti-IgE Biologics: Protein Structures and Mechanisms of Action. McDonnell, J.M., Dhaliwal, B., **Sutton, B.J.** & Gould, H.J. *Ann. Rev. Immunol.*, **41**, 255-275, 2023. (DOI: 10.1146/annurev-immunol-061020-053712)

Differences between human and mouse IgM Fc receptor (Fc $\mu$ R). Kubagawa, H., Skopnik, C.M., Al-Qaisi, K., Teuber, R., Aliabadi, P.M., Calvert, R.A., Enghard, P., Radbruch, A. & **Sutton, B.J.** *Int. J. Mol. Sci.*, **22**:7024, 2021. (DOI: 10.3390/ijms22137024)

Reviving lost binding sites: Exploring calcium binding-site transitions between human and murine CD23. Ilkow, V.F., Davies, A.M., Dhaliwal, B., Beavil, A.J., **Sutton, B.J.** & McDonnell, J.M. *FEBS Open Bio.*, **11**, 1827-1840, 2021. (DOI: 10.1002/2211-5463.13214)

Identification of amino acid residues in human IgM Fc receptor (Fc $\mu$ R) critical for IgM binding. Skopnik, C.M., Al-Qaisi, K., Calvert, R.A., Enghard, P., Radbruch, A., **Sutton, B.J.** & Kubagawa, H. *Front. Immunol.*, **11**: 618327, 2021. (DOI: 10.3389/fimmu.2020.618327)

IgE to epitopes of Ara h 2 enhance the diagnostic accuracy of Ara h 2-specific IgE. Santos, A.F., Barbosa-Morais, N.L., Hurlburt, B.K., Ramaswamy, S., Hemmings, O., Kwok, M., O'Rourke, C., Bahnson, H.T., Cheng, H., James, L., Gould, H.J., **Sutton, B.J.**, Maleki, S.J. & Lack, G. *Allergy*, **75**, 2309-2318, 2020. (DOI: 10.1111/all.14301)

Engineering the Fab fragment of the anti-IgE omalizumab to prevent Fab crystallization and permit IgE-Fc complex crystallization. Mitropoulou, A.N., Ceska, T., Heads, J.T., Beavil, A.J., Henry, A.J., \*McDonnell, J.M., \***Sutton, B.J.** & \*Davies, A.M. *Acta Crystallogr. Sect. F Struct. Biol. Commun.* **76**, 116-129, 2020. (DOI: 10.1107/S2053230X20001466)

Mapping of the binding site for Fc $\mu$ R in human IgM-Fc. Nyamboya, R.A., **Sutton, B.J.** & Calvert R.A. *BBA - Proteins and Proteomics*, **1868**, 140266, 2019. (DOI: 10.1016/j.bbapap.2019.140266)

Interplay between affinity and valency in effector cell degranulation: a model system with polcalcin allergens and human patient-derived IgE antibodies. Bucaite, G., Kang-Pettinger, T., Moreira, J., Gould, H.J., James, L.K., **Sutton, B.J.** & McDonnell, J.M. *J. Immunol.*, **203**, 1693-1700, 2019. (DOI: 10.4049/jimmunol.1900509)

IgE Antibodies: From Structure to Function and Clinical Translation. **Sutton, B.J.**, Davies, A.M., Bax, H.J. & Karagiannis, S.N. *Antibodies*, **8**, 19-60, 2019. (DOI: 10.3390/antib8010019)

A mass spectrometry-based modelling workflow for accurate prediction of IgG antibody conformations in the gas phase. Hansen, K., **Sutton, B.J.**, McDonnell, J.M., Lau, A.M.C., Politis, A., Struwe, W.B. & Giles, K. *Angewandte Chemie Int. Edn.*, **57**, 17194-17199, 2018. (DOI: 10.1002/anie.201812018)

The structure of PghL hydrolase bound to its substrate poly- $\gamma$ -glutamate. Ramaswamy, S., Rasheed, M., Morelli, C., Calvio, C., **Sutton, B.J.** & Pastore, A. *FEBS J.*, **285**, 4575-4589, 2018. (DOI: 10.1111/febs.14688)

Structure of a patient-derived antibody in complex with allergen reveals simultaneous conventional and superantigen-like recognition. Mitropoulou, A.N., Bowen, H., Dodev, T.S., Davies, A.M., Bax, H.J., Beavil, R.L., Beavil, A.J., Gould, H.J., James, L.K. & **Sutton, B.J.** *Proc. Natl. Acad. Sci. USA*, **115**, E8707-E8716, 2018. (DOI:10.1073/pnas.1806840115)

Structural basis for selective inhibition of immunoglobulin E-receptor interactions by an anti-IgE antibody. Chen, J-B., Ramadani, F., Pang, M.O.Y., Beavil, R.L., Holdom, M.D., Mitropoulou, A.N., Beavil, A.J., Gould, H.J., Chang, T-W., **Sutton, B.J.**, McDonnell, J.M. & Davies, A.M. *Sci. Reports*, **8**, 11548, 2018. (DOI: 10.1038/s41598-018-29664-4)

Crystal structures of murine and human Histamine-Releasing Factor (HRF/TCTP) and a model for HRF dimerisation in mast cell activation. Doré, K.A., Kashiwakura, J., McDonnell, J.M., Gould, H.J., Kawakami, T., **Sutton, B.J.** & Davies, A.M. *Mol. Immunol.*, **93**, 216-222, 2018. (DOI: 10.1016/j.molimm.2017.11.022)

IgY: a key isotype in antibody evolution. Zhang, X., Calvert, R.A., **Sutton, B.J.** & Doré, K.A. *Biol. Rev. Camb. Philos. Soc.*, **92**, 2144-2156, 2017. (DOI: 10.1111/brv.12325)

Thermal sensitivity and flexibility of the C $\epsilon$ 3 domains in immunoglobulin E. Doré, K., Davies, A.M., Drinkwater, N., Beavil, A.J., McDonnell, J.M. & **Sutton, B.J.** *BBA - Proteins and Proteomics*, **1865**, 1336-1347, 2017. (DOI: 10.1016/j.bbapap.2017.08.005).

IgE trimers drive SPE-7 cytokinergic activity. Bax, H.J., Bowen, H., Beavil, R.L., Chung, R., Ward, M., Davies, A.M., Dodev, T.S., McDonnell, J.M., Beavil, A.J., **Sutton, B.J.** & Gould, H.J. *Sci. Reports*, **7**, 8164, 2017. (DOI: 10.1038/s41598-017-08212-6).

Allosteric mechanism of action of the therapeutic anti-IgE antibody Omalizumab. Davies, A.M., Allan, E.G., Keeble, A.H., Delgado, J., Cossins, B.P., Mitropoulou, A.N., Pang, M.O.Y., Ceska, T., Beavil, A.J., Craggs, G., Westwood, M., Henry, A.J., McDonnell, J.M. & **Sutton, B.J.** *J. Biol. Chem.*, **292**, 9975-9987, 2017. (DOI: 10.1074/jbc.M117.776476)

IgE binds asymmetrically to its B cell receptor CD23. Dhaliwal, B., Pang, M., Keeble, A., James, L., Gould, H., McDonnell, J., **Sutton, B.** & Beavil, A. *Sci. Reports*, **7**, 45533, 2017. (DOI: 10.1038/srep45533)

Room temperature structure of human IgG4-Fc from crystals analysed *in situ*. Davies, A.M., Rispens, T., Ooijevaar-de Heer, P., Aalberse, R.C. & **Sutton, B.J.** *Mol. Immunol.*, **81**, 85-91, 2017. (DOI: 10.1016/j.molimm.2016.11.021)

Antibodies and superantibodies in patients with chronic rhinosinusitis with nasal polyps. Chen, J-B., James, L.K., Davies, A.M., Wu, Y-C., Rimmer, J., Lund, V.J., Chen, J-H., McDonnell, J.M., Chan, Y-C., Hutchins, G.H., Chang, T.W., **Sutton, B.J.**, Kariyawasam, H.H. & Gould, H.J. *J. Allergy Clin. Immunol.*, **139**, 1195-1204, 2017. (DOI: 10.1016/j.jaci.2016.06.066)

Ontogeny of human IgE-expressing B cells and plasma cells. Ramadani, F., Hobson, P.S., Chan Y-C., Chen, J-B., Chang, T.W., McDonnell, J.M., **Sutton, B.J.** & Gould, H.J. *Allergy*, **72**, 66-76, 2017. (DOI: 10.1111/all.12911)

IgG4 characteristics and functions in cancer immunity. Crescioli, S., Correa, I., Karagiannis, P., Davies, A.M., **Sutton, B.J.**, Nestle, F.O. & Karagiannis, S.N. *Current Allergy & Asthma Reports*, **16**:7 (11 pages), 2016. (DOI: 10.1007/s11882-015-0580-7)

Antibody mimetics: promising complementary agents to animal-sourced antibodies. Baloch, A.R., Baloch, A.W., **Sutton, B.J.** & Zhang, X. *Crit. Rev. Biotechnol.*, **36**, 268-275, 2016. (DOI: 10.3109/07388551.2014.958341)

Human IgG4: a structural perspective. Davies, A.M. & **Sutton, B.J.** *Immunological Rev.*, **268**, 139-159, 2015. (DOI: 10.1111/imr.12349)

Structure and dynamics of IgE-receptor interactions: Fc $\epsilon$ RI and CD23/Fc $\epsilon$ RII. **Sutton, B.J.** & Davies, A.M. *Immunological Rev.*, **268**, 222-235, 2015. (DOI: 10.1111/imr.12340)

Intrinsic properties of germinal centre-derived B cells promote their enhanced class switching to IgE. Ramadani, F., Upton, N., Hobson, P., Chan Y.C., Mzinza, D., Bowen, H., Kerridge, C., **Sutton, B.J.**, Fear, D.J. & Gould, H.J. *Allergy*, **70**, 1269-1277, 2015. (DOI: 10.1111/all.12679)

Validating the GTP cyclohydrolase 1-feedback regulatory complex as a therapeutic target using biophysical and *in vivo* approaches. Hussein, D.A.A., Starr, A., Heikal, L., McNeill, E., Channon, K., Brown, P., **Sutton, B.J.**, McDonnell, J.M. & Nandi, M. *Brit. J. Pharmacol.*, **172**, 4146-4157, 2015. (DOI: 10.1111/bph.13202)

Inhibition of allergen-dependent IgE activity by antibodies of the same specificity but different class. Dodev, T.S., Bowen, H., Shamji, M.H., Bax, H.J., Beavil, A.J., McDonnell, J.M., Durham, S.R., **Sutton, B.J.**, Gould, H.J. & James, L.K. *Allergy*, **70**, 720-724, 2015. (DOI: 10.1111/all.12607)

Mechanism of the antigen-independent cytokinergic SPE-7 IgE activation of human mast cells *in vitro*. Bax, H.J., Bowen, H., Dodev, T.S., **Sutton, B.J.** & Gould, H.J. *Sci. Reports*, **5**, 9538, 2015. (DOI: 10.1038/srep09538)

Dynalets: A new method for modelling and compressing biological signals. Applications to physiological and molecular signals. Demongeot, J., Hansen, O., Hamie, A., Franco, C., **Sutton, B.** & Cohen, E-P. *Comptes Rendus Biologies*, **337**, 609-624, 2014.

Crystal structure of deglycosylated human IgG4-Fc. Davies, A.M., Jefferis, R. & **Sutton, B.J.** *Mol. Immunol.*, **62**, 46-53, 2014.

Human immunoglobulin E flexes between acutely bent and extended conformations. Drinkwater, N., Cossins, B.P., Keeble, A.H., Wright, M., Cain, K., Hailu, H., Oxbrow, A., Delgado, J., Shuttleworth, L.K., Kao, M.W., McDonnell, J.M., Beavil, A.J., Henry, A.J. & **Sutton, B.J.** *Nature Struct. Mol. Biol.*, **21**, 397-404, 2014. (DOI: 10.1038/nsmb.2795)

Generation and characterization of chicken-sourced single-chain variable fragments (scFv) against porcine interferon-gamma (PIFN- $\gamma$ ). Chen, H.X., He, F., Sun, Y., Luo, Y., Qui, H.J., Zhang, X.Y. & **Sutton, B.J.** *J. Immunoassay Immunochem.*, **36**, 27-44, 2014.

A range of C $\epsilon$ 3-C $\epsilon$ 4 interdomain angles in IgE Fc accommodate binding to its receptor CD23. Dhaliwal, B., Pang, M.O., Yuan, D, Beavil, A.J. & **Sutton, B.J.** *Acta Cryst.* **F70**, 305-309, 2014.

Structural determinants of unique properties of human IgG4-Fc. Davies, A.M., Rispens, T., Ooijevaar-de Heer, P., Gould, H.J., Jefferis, R. Aalberse, R.C. & **Sutton, B.J.** *J. Mol. Biol.*, **426**, 630-644, 2014. (DOI: 10.1016/j.jmb.2013.10.039)

Dynamics of inter-heavy chain interactions in human immunoglobulin G (IgG) subclasses studied by kinetic Fab arm exchange. Rispens, T., Davies, A.M., Ooijevaar-de Heer, P., Absalah, S., Bende, O., **Sutton, B.J.**, Vidarsson, G. & Aalberse, R.C. *J. Biol. Chem.*, **289**, 6098-6109, 2014.

Human IgE against the major allergen *Bet v 1* - defining an epitope with limited cross-reactivity between different PR-10 family proteins. Levin, M., Davies, A.M., Liljekvist, M., Carlsson, F., Gould, H.J., **Sutton, B.J.** & Ohlin, M. *Clin. Exp. Allergy*, **44**, 288-299, 2014.

Distribution of rat neonatal Fc receptor in the principal organs of neonatal and pubertal rats. Tian, Z., **Sutton, B.J.** & Zhang, X. *J. Receptors & Signal Transduction Res.*, **34**, 137-142, 2014.

Allergy's Achilles' heel. **Sutton, B.J.** *Nature Chem. Biol.*, **9**, 757-759, 2013.

A redundant role of human thyroid peroxidase propeptide for cellular, enzymatic and immunological activity. Godlewska, M., Góra, M., Buckle, A.M., Porebski, B.T., Kemp, E.H., **Sutton, B.J.**, Czarnocka, B. & Banga, J.P. *Thyroid*, **24**, 371-382, 2013.

Conformational plasticity at the IgE-binding site of the B-cell receptor CD23. Dhaliwal, B., Pang, M.O.Y., Yuan, D., Yahya, N., Fabiane, S.M., McDonnell, J.M., Gould, H.J., Beavil, A.J. & **Sutton, B.J.** *Mol. Immunol.*, **56**, 693-697, 2013. (DOI: 10.1016/j.molimm.2013.07.005)

Ca<sup>2+</sup>-dependent structural changes in the B-cell receptor CD23 increase its affinity for human immunoglobulin E. Yuan, D., Keeble, A.H., Hibbert, R.G., Fabiane, S., Gould, H.J., McDonnell, J.M., Beavil, A.J., **Sutton, B.J.** & Dhaliwal, B. *J. Biol. Chem.*, **288**, 21667-21677, 2013.

Crystal structure of the human IgG4 C<sub>H3</sub> dimer reveals the role of Arg409 in the mechanism of Fab-arm exchange. Davies, A.M., Rispens, T., den Blecker, T.H., McDonnell, J.M., Gould, H.J., Aalberse, R.C. & **Sutton B.J.** *Mol. Immunol.*, **54**, 1-7, 2013. (DOI: 10.1016/j.molimm.2012.10.029)

Mapping of the CD23 binding site on IgE and allosteric control of the IgE-Fc $\epsilon$ RI interaction. Borthakur, S., Hibbert, R.G., Pang, M.O.Y., Yahya, N., Bax, H.J., Kao, M.W., Cooper, A.M., Beavil, A.J., **Sutton, B.J.**, Gould, H.J. & McDonnell, J.M. *J. Biol. Chem.*, **287**, 31457-61, 2012.

Crystal structure of IgE bound to its B-cell receptor CD23 reveals a mechanism of reciprocal allosteric inhibition with high-affinity receptor Fc $\epsilon$ RI. Dhaliwal, B., Yuan, D., Pang, M.O.Y., Henry, A.J., Cain, K., Oxbrow, A., Fabiane, S.M., Beavil, A.J., McDonnell, J.M., Gould, H.J. & **Sutton, B.J.** *Proc. Natl. Acad. Sci. USA*, **109**, 12686-12691, 2012. (DOI: 10.1073/pnas.1207278109)

A fluorescent biosensor reveals conformational changes in human IgE Fc: implications for mechanisms of receptor binding, inhibition and allergen recognition. Hunt, J., Keeble, A.H., Dale, R.E., Corbett, M.K., Beavil, R.L., Levitt, J., Swann, M.J., Suhling, K., Ameer-Beg, S., **Sutton, B.J.** & Beavil, A.J. *J. Biol. Chem.*, **287**, 17459-17470, 2012.

Soluble CD23 controls IgE synthesis and homeostasis in human B cells. Cooper, A.M., Hobson, P.S., Jutton, M.R., Kao, M.W., Drung, B., Schmidt, B., Fear, D.J., Beavil, A.J., McDonnell, J.M., **Sutton, B.J.** & Gould, H.J. *J. Immunol.*, **188**, 3199-3207, 2012.

Synthesis and incorporation into cyclic peptides of tolan amino acids and their hydrogenated congeners: construction of an array of A-B loop mimetics of the C $\epsilon$ 3 domain of human IgE. Offermann, D.A., McKendrick, J.E., Sejberg, J.J.P., Mo, B., Holdom, M.D., Helm, B.A., Leatherbarrow, R.J., Beavil, A.J., **Sutton, B.J.** & Spivey, A.C. *J. Org. Chem.*, **77**, 3197-3214, 2012.

Synthesis of the C19 methyl ether of aspercyclide A via germyl-Stille macrocyclisation and ELISA evaluation of both enantiomers following optical resolution. Carr, J.L., Sejberg, J.J.P., Saab, F., Holdom, M.D., Davies, A.M., White, A.J.P., Leatherbarrow, R.J., Beavil, A.J., **Sutton, B.J.**, Lindell, S.D. & Spivey, A.C. *Org. Biomol. Chem.*, **9**, 6814-6824, 2011.

Conformational changes in IgE contribute to its uniquely slow dissociation rate from receptor Fc $\epsilon$ RI. Holdom, M.D., Davies, A.M., Nettleship, J.E., Bagby, S.C., Dhaliwal, B., Girardi, E., Hunt, J., Gould, H.J., Beavil, A.J., McDonnell, J.M. & **Sutton, B.J.** *Nature Struct. Molec. Biol.*, **18**, 571-576, 2011. (DOI: 10.1038/nsmb.2044)

Total synthesis of ( $\pm$ )-aspercyclide A and its C19 methyl ether. Carr, J.L., Offermann, D.A., Holdom, M.D., Dusart, P., White, A.J.P., Beavil, A.J., Leatherbarrow, R.L., Lindell, S.D., **Sutton, B.J.** & Spivey, A.C. *Chem. Commun.*, **46**, 1-3, 2010.

Mutations in an avian IgY-Fc fragment reveal the locations of monocyte Fc receptor binding sites. Taylor, A.I., **Sutton, B.J.** & Calvert, R.A. *Dev. Comp. Immunol.*, **34**, 97-101, 2010.

A monomeric chicken IgY receptor binds IgY with 2:1 stoichiometry. Taylor, A.I., Beavil, R.L., **Sutton, B.J.** & Calvert, R.A. *J. Biol. Chem.*, **284**, 24168-24175, 2009.

Structure and substrate specificity of acetyltransferase ACIAD1637 from *Acetivobacter baylyi* ADP1. Davies, A.M., Tata, R., Snape, A., **Sutton, B.J.** & Brown, P.R. *Biochemie*, **91**, 484-489, 2009.

The crystal structure of an avian IgY-Fc fragment reveals conservation with both mammalian IgG and IgE. Taylor, A.I., Fabiane, S.M., **Sutton, B.J.** & Calvert, R.A. *Biochemistry*, **48**, 558-562, 2009.

The crystal structure of rabbit IgG-Fc. Girardi, E., Holdom, M.D., Davies, A.M., **Sutton, B.J.** & Beavil, A.J. *Biochem. J.*, **417**, 77-83, 2009.

Adaptive protein evolution grants organismal fitness by improving catalysis and flexibility. Tomatis, P.E., Fabiane, S.M., Simona, F., Carloni, P., **Sutton, B.J.** & Vila, A. *Proc. Natl. Acad. Sci. USA*, **105**, 20605-20610, 2008.

Attenuation of IgE affinity for Fc $\epsilon$ RI radically reduces the allergic response *in vitro* and *in vivo*. Hunt, J., Bracher, M.G., Shi, J., Fleury, S., Dombrowicz, D., Gould, H.J., **Sutton, B.J.** & Beavil, A.J. *J. Biol. Chem.*, **283**, 29882-29887, 2008.

Remarkable selective glycosylation of the immunoglobulin variable region in follicular lymphoma. McCann, K.J., Ottensmeier, C.H., Callard, A., Radcliffe, C.M., Harvey, D.J., Dwek, R.A., Rudd, P.M., **Sutton, B.J.**, Hobby, P. & Stevenson, F.K. *Mol. Immunol.*, **45**, 1567-1572, 2008.

Avian IgY binds to a monocyte receptor with IgG-like kinetics despite an IgE-like structure. Taylor, A.I., Gould, H.J., **Sutton, B.J.** & Calvert, R.A. *J. Biol. Chem.*, **283**, 16384-16390, 2008.

IgE in allergy and asthma today. Gould, H.J. & **Sutton, B.J.** *Nature Reviews Immunol.*, **8**, 205-217, 2008.

Structure of a putative acetyltransferase (PA1377) from *Pseudomonas aeruginosa*. Davies, A.M., Tata, R., Chauviac, F-X., **Sutton, B.J.** & Brown, P.R. *Acta Cryst.* **F64**, 338-342, 2008.

Role of IgE receptors in IgE antibody-mediated cytotoxicity and phagocytosis of ovarian tumor cells by human monocytic cells. Karagiannis, S.N., Bracher, M.G., Beavil, R.L., Beavil, A.J., Hunt, J., McCloskey, N., Thompson, R.G., East, N., Burke, R., **Sutton, B.J.**, Dombrowicz, D., Balkwill, F.R. & Gould, H.J. *Cancer Immunol. Immunotherapy*, **57**, 247-263, 2008.

Soluble CD23 Monomers Inhibit and Oligomers Stimulate IgE Synthesis in Human B Cells. McCloskey, N., Hunt, J., Beavil, R.L., Jutton, M.R., Grundy, G.J., Girardi, E., Fabiane, S.M., Fear, D.J., Conrad, D.H., **Sutton, B.J.** & Gould, H.J. *J. Biol. Chem.*, **282**, 24083-24091, 2007.

The Allergic March from Staphylococcus aureus Superantigens to Immunoglobulin E. Gould, H.J., Takhar, P., Harries, H.E, Chevretton, E. & **Sutton, B.J.** *Chem. Immunol. Allergy*, **93**, 106-136, 2007.

Three-colour flow cytometric method to measure antibody-dependent tumour cell killing by cytotoxicity and phagocytosis. Bracher, M, Gould, H.J., **Sutton, B.J.**, Dombrowicz, D. & Karagiannis, S.N. *J. Immunol. Methods*, **323**, 160-171, 2007.

Asp120 locates Zn<sup>2+</sup> for optimal metallo-beta-lactamase activity. Llarrull, L.I., Fabiane, S.M., Kowalski, J.M., Bennett, B., **Sutton, B.J.** & Vila, A.J. *J. Biol. Chem.*, **282**, 18276-18285, 2007.

Carrier-specificity of a phosphorylcholine-binding antibody requires the presence of the constant domains and is not dependent on the unique VH49 glycine or VH30 threonine residues. Tam, F.C.H., Ma, C.H., Leung, D.T.M., **Sutton, B.J.** & Lim, P-L. *J. Immunol. Methods*, **321**, 152-163, 2007.

Crystal structure of a human autoimmune complex between IgM rheumatoid factor RF61 and IgG1 Fc reveals a novel epitope and evidence for affinity maturation. Duquerroy, S., Stura, E.A., Bressanali, S., Fabiane, S.M., Vamey, M.C., Beale, D., Hamon, M., Casali, P., Rey, F.A., **Sutton, B.J.** & Taussig, M.J. *J. Mol. Biol.*, **368**, 1321-1331, 2007.

The first avian Ig-like receptor family member combines features of mammalian FcR and FCRL. Taylor, A.I., Gould, H.J., **Sutton, B.J.** & Calvert, R.A. *Immunogenetics*, **59**, 323-328, 2007.

L-methionine sulfoximine, but not phosphinothricin, is a substrate for an acetyl transferase (gene PA4866) from *Pseudomonas aeruginosa*: structural and functional studies. Davies, A.M., Tata, R., Beavil, R.L., **Sutton, B.J.** & Brown, P.R. *Biochemistry* **46**, 1829-1839, 2007.

Conformational change in the IgE-Fc $\epsilon$ RI interaction as a target for inhibitor design. Beavil, A.J., Hunt, J., Beavil, R.L., Gould, H.J. & **Sutton, B.J.** *Allergy & Clin. Immunol. Int.*, **19**, Suppl. 2, 2007.

Structural insights into autoreactive determinants in thyroid peroxidase composed of discontinuous and multiple key contact residues contributing to epitopes recognised by patients' autoantibodies. Dubska, M., Banga, J.P., Plochocka, D., Hoser, G., Kemp, E.H., **Sutton, B.J.**, Gardas, A. & Gora, M. *Endocrinology*, **147**, 5995-6003, 2006.

Analysis of the interaction between RGD expressing adenovirus type 5 fiber knob domains and  $\alpha$ v $\beta$ 3 integrin reveals distinct binding profiles and intracellular trafficking. Lord, R., Parsons, M., Kirby, I., Beavil, A., **Sutton, B.J.** & Santis, G. *J. Gen. Virol.* **87**, 2497-2505, 2006.

The structure of human CD23 and its interactions with IgE and CD21. Hibbert, R.G., Teriete, P., Grundy, G.J., Beavil, R.L., Reljić, R., Holers, V.M., Hannan, J.P., **Sutton, B.J.**, Gould, H.J. & McDonnell, J.M. *J. Exp. Med.*, **202**, 751-760, 2005.

An attempt to define allergen-specific molecular surface features: a bioinformatic approach. Furmonaviciene, R., **Sutton, B.J.**, Glaser, F., Laughton, C.A., Jones, N., Sewell H.F. & Shakib, F. *Bioinformatics*, **21**, 4201-4204, 2005.

Crystal structure of a putative phosphinothricin acetyltransferase (PA4866) from *Pseudomonas aeruginosa* PAC1. Davies, A.M., Tata, R., Agha, R., **Sutton, B.J.** & Brown, P.R. *Proteins: Structure, Function and Bioinformatics*, **61**, 677-679, 2005.

Biased use of V $\mu$ 5 in IgE-positive B cells in the nasal mucosa in allergic rhinitis. Coker, H.A., Harries, H.E., Banfield, G.K., Carr, V.A., Durham, S.R., Chevretton, E.B., Hobby, P., **Sutton, B.J.** & Gould, H.J. *J. Allergy Clin. Immunol.*, **116**, 445-452, 2005.

Disulphide linkage controls the affinity and stoichiometry of IgE Fc $\epsilon$ 3-4 binding to Fc $\epsilon$ RI. Hunt, J., Beavil, R.L., Calvert, R.A., Gould, H.J., **Sutton, B.J.** & Beavil, A.J. *J. Biol. Chem.*, **280**, 16808-16814, 2005.

Homology modelling of transferrin-binding protein A from *Neisseria meningitidis*. Oakhill, J.S., **Sutton, B.J.**, Gorringe, A.R., Evans, R.W. *Protein Engineering*, **18**, 221-228, 2005.

Effect of pH on the active site of an Arg121Cys mutant of the metallo- $\beta$ -lactamase from *Bacillus cereus*: implications for the enzyme mechanism. Davies, A.M., Rasia, R.M., Vila, A.J., **Sutton, B.J.** & Fabiane, S.M. *Biochemistry*, **44**, 4841-4849, 2005.

Key residues contributing to dominant conformational autoantigenic epitopes on thyroid peroxidase identified by mutagenesis. Gora, M., Gardas, A., Watson, P.F., Hobby, P., Weetman, A.P., **Sutton, B.J.** & Banga, J.P. *Biochem. Biophys. Res. Comm.*, **320**, 795-801, 2004.

Evaluation of conformational epitopes on thyroid peroxidase by anti-peptide antibody binding and mutagenesis. Gora, M., Gardas, A., Wiktorowicz, W., Hobby, P., Watson, P.F., Weetman, A.P., **Sutton, B.J.** & Banga, J.P. *Clin. Exp. Immunol.*, **136**, 137-144, 2004.

The biology of IgE and the basis of allergic disease. Gould, H.J., **Sutton, B.J.**, Beavil, A.J., Beavil, R.L., McCloskey, N., Coker, H.A., Fear, D. and Smurthwaite, L. *Ann. Rev. Immunol.*, **21**, 579-628, 2003.

Scaffolds for protein crystallisation. Stura, E.A., Taussig, M.J., **Sutton, B.J.**, Duquerroy, S., Bressanelli, S., Minson, A.C. & Rey, F. *Acta Cryst.*, **D58**, 1715-1721, 2002.

Evidence for plasticity and structural mimicry at the immunoglobulin light chain – protein L interface. Graille, M., Housden, N.G., Harrison, S., Findlow, I.S.C., Crump, M.P., Muller, B.H., Battail-Poirot, N., Sibaï, G., **Sutton, B.J.**, Taussig, M.J., Jolivet-Reynaud, C., Gore, M.G., Stura, E.A. *J. Biol. Chem.*, **277**, 47500-47506, 2002.

Evidence for involvement of a hydrophobic patch in framework region 1 of human V4-34-encoded immunoglobulins in recognition of the red cell I antigen. Potter, K.N., Hobby, P., Klijn, S., Stevenson, F.K. & **Sutton, B.J.** *J. Immunol.*, **169**, 3777-3782, 2002.

The crystal structure of IgE Fc reveals an asymmetrically bent conformation. Wan, T., Beavil, R.L., Fabiane, S.M., Beavil, A.J., Sohi, M.K., Keown, M., Young, R.J., Henry A.J., Owens, R.J., Gould, H.J. & **Sutton, B.J.** *Nature Immunol.*, **3**, 681-686, 2002.

Mutagenesis within human FcεRIα differentially affects human and murine IgE binding. Mackay, G.A., Hulett, M.D., Cook, J.P.D., Trist, H.M., Henry, A.J., McDonnell, J.M., Beavil, A.J., Beavil, R.L., **Sutton, B.J.**, Hogarth, P.M. & Gould, H.J. *J. Immunol.*, **168**, 1787-1795, 2002.

A novel immunoglobulin superfamily receptor (19A) related to CD2 is expressed on activated lymphocytes and promotes homotypic B cell adhesion. Murphy, J.M., Hobby, P., Vilarino-Varela, J., Bishop, B., Iordanidou, P., **Sutton, B.J.** & Norton, J.D. *Biochem. J.*, **361**, 431-436, 2002.

Adenovirus type 9 fiber knob binds to the coxsackie B virus-adenovirus receptor (CAR) with lower affinity than fiber knobs of other CAR-binding adenovirus serotypes. Kirby, I., Lord, R., Davison, E., Wickham, T.J., Roelvink, P.W., Kovesdi, I., **Sutton, B.J.** & Santis, G. *J. Virology*, **75**, 7210-7214, 2001.

Rae-1 recognition by NKG2d: A molecular mechanism for gamma-delta T cell mediated surveillance of cutaneous malignancy in the mouse. Oppenheim, D.E., Giradi, M., Steele, C.R., Lewis, J.M., Filler, R., Glusac, E., Hobby, P., **Sutton, B.J.**, Tigelaar, R.E. & Hayday, A.C. *Cancer Gene Therapy*, **8**, 915, 2001.

Regulation of cutaneous malignancy by γδ T cells. Giradi, M., Oppenheim, D.E., Steele, C.R., Lewis, J.M., Glusac, E., Filler, R., Hobby, P., **Sutton, B.J.**, Tigelaar, R.E. & Hayday, A.C. *Science*, **294**, 605-609, 2001.

Crystallization of macromolecular complexes: stoichiometric variation screening. Stura, E.A., Graille, M., Taussig, M.J., **Sutton, B.J.**, Gore, M.G., Silverman, G.J., & Charbonnier, J-B. *J. Crystal Growth*, **232**, 580-590, 2001.

Complex between *Peptostreptococcus magnus* protein L and a human antibody reveals structural convergence in the interaction modes of Fab binding proteins. Graille, M., Stura, E.A., Housden, N.G., Beckingham, J.A., Bottomley, S.P., Beale, D., Taussig, M.J., **Sutton, B.J.**, Gore, M.G. & Charbonnier, J-B. *Structure*, **9**, 679-687, 2001.

Endocytosis and recycling of the complex between CD23 and HLA-DR in human B cells. Karagiannis, S.N., Warrack, J.K., Jennings, K.H., Murdock, P.R., Christie, G., Moulder, K., **Sutton, B.J.** & Gould H.J. *Immunology*, **103**, 319-331, 2001.

The structure of the IgE Cε2 domain and its role in stabilizing the complex with its high-affinity receptor FcεRI. McDonnell, J.M., Calvert, R., Beavil, R.L., Beavil, A.J., Henry, A.J., **Sutton, B.J.**, Gould, H.J. & Cowburn, D. *Nature Structural Biology*, **8**, 437-441, 2001.

Inhibition of IgE-receptor interactions. **Sutton, B.J.**, Beavil, R.L. & Beavil, A.J. *British Medical Bulletin*, **56**, 1004-1018, 2000.

Specificity and binding kinetics of murine lupus anti-DNA monoclonal antibodies implicate different stimuli for their production. Eivazova, E.R., McDonnell, J.M., **Sutton, B.J.** & Staines, N.A. *Immunology*, **101**, 371-377, 2000.

Human thyroid peroxidase: mapping of autoantibodies conformational epitopes to the enzyme surface. Gardas, A., Watson, P.F., Hobby, P., Smith, A., Weetman, A.P., **Sutton, B.J.** & Banga, J.P. *Redox Report*, **5**, 237-241, 2000.

Molecular model of a lattice of signalling proteins involved in bacterial chemotaxis. Shimizu, T.S., Le Novère, N., Levin, M.D., Beavil, A.J., **Sutton, B.J.** & Bray, D. *Nature Cell Biology*, **2**, 792-796, 2000.

Conformation of the isolated C $\epsilon$ 3 domain of IgE and its complex with the high-affinity receptor, Fc $\epsilon$ RI. Henry, A.J., McDonnell, J.M., Ghirlando, R., **Sutton, B.J.** & Gould, H.J. *Biochemistry*, **39**, 7406-7413, 2000.

Crystal structure of a *Staphylococcus aureus* protein A domain complexed with the Fab fragment of a human IgM antibody: structural basis for recognition of B-cell receptors and superantigen activity. Graille, M., Stura, E.A., Corper, A.L., **Sutton, B.J.**, Taussig, M.J., Charbonnier J-B. & Silverman G.J. *Proc. Natl. Acad. Sci. USA*, **97**, 5399-5404, 2000.

Domain one of the high affinity IgE receptor, Fc $\epsilon$ RI, regulates binding to IgE through its interface with domain two. Rigby, L.J., Epa, V.C., Mackay, G.A., Hulett, M.D., **Sutton, B.J.**, Gould, H.J. & Hogarth, P.M. *J. Biol. Chem.*, **275**, 9664-9672, 2000.

Identification of an immunodominant region recognised by human autoantibodies in a three-dimensional model of thyroid peroxidase. Hobby, P., Gardas, A., Radomski, R., McGregor, A.M., Banga, J.P. & **Sutton, B.J.** *Endocrinology*, **141**, 2018-2026, 2000.

Cross-reactivity of anti-idiotypic antibodies with DNA in systemic lupus erythematosus. Eivazova, E.R., McDonnell, J.M., **Sutton, B.J.** & Staines, N.A. *Arthritis & Rheumatism*, **43**, 429-439, 2000.

The structure and origin of rheumatoid factors. **Sutton, B.J.**, Corper, A.L., Bonagura, V. & Taussig, M.J. *Immunology Today*, **21**, 177-183, 2000.

Identification of contact residues and definition of the CAR binding site of Adenovirus type 5 fiber protein. Kirby, I., Davison, E., Beavil, A.J., Soh, C.P.C., Wickham, T.J., Roelvink, P.W., Kovsdi, I., **Sutton, B.J.** & Santis, G. *J. Virology*, **74**, 2804-2813, 2000.

Crystal structure of the anti-(carcinoembryonic antigen) single-chain Fv antibody MFE-23 and a model for antigen binding based upon intermolecular contacts. Boehm, M.K., Corper, A.L., Wan, T., Sohi, M.K., **Sutton, B.J.**, Thornton, J.D., Keep, P.A., Chester, K.A., Begent, R.H.J. & Perkins, S.J. *Biochem. J.*, **346**, 519-528, 2000.

Mutations in the DG loop of Adenovirus 5 fiber knob protein abolish high affinity binding to its cellular receptor CAR. Kirby, I., Davison, E., Beavil, A.J., **Sutton, B.J.** & Santis, G. *J. Virology*, **73**, 9508-9514, 1999.

Up-regulation of Fc $\epsilon$ RI on human basophils by IgE antibody is mediated by interaction of IgE with Fc $\epsilon$ RI. MacGlashan, D., White-McKenzie, J., Chichester, K., Lichtenstein, L.M., Henry, A.J., **Sutton, B.J.** & Gould, H.J. *J. Allergy & Clin. Immunol.*, **104**, 492-498, 1999.

Evidence that Cys166 is the active site nucleophile of *Pseudomonas aeruginosa* amidase: crystallisation and preliminary X-ray diffraction analysis of the enzyme. Farnaud, S., Tata, R., Sohi, M.K., Wan, T., Brown, P.R. & **Sutton, B.J.** *Biochem. J.*, **340**, 711-714, 1999.

Distinct immunological and biochemical properties of thyroid peroxidase purified from human thyroid glands and recombinant protein produced in insect cells. Gardas, A., **Sutton, B.J.**, Piotrowska, U., Pasięka, Z., Barnett, P.S., Huang, G., McGregor, A.M. & Banga, J.P. *Biochimica Biophysica Acta*, **1433**, 229-239, 1999.

Interactions between a single immunoglobulin-binding domain of protein L from *Peptostreptococcus magnus* and a human *kappa* light chain. Beckingham, J.A., Bottomley, S.P., Hinton, R., **Sutton, B.J.** & Gore, M.G. *Biochem. J.*, **340**, 193-199, 1999.

Crystal structure of the zinc-dependent  $\beta$ -lactamase from *Bacillus cereus* at 1.9Å resolution: bi-nuclear active site with features of a mononuclear enzyme. Fabiane, S.M., Sohi, M.K., Wan, T., Payne, D.J., Bateson, J.H., Mitchell, T. & **Sutton, B.J.** *Biochemistry*, **37**, 12404-12411, 1998.

Molecular modelling of an anti-DNA autoantibody (V-88) and mapping of V region epitopes recognised by heterologous and autoimmune antibodies. Hobby, P., Ward, F.J., Denbury, A.N., Williams, D.G., Staines, N.A. & **Sutton, B.J.** *J. Immunol.*, **161**, 2944-2952, 1998.

Thermodynamics of the interaction of human immunoglobulin E with its high-affinity receptor Fc $\epsilon$ RI. Keown, M.B., Henry, A.J., Ghirlando, R., **Sutton, B.J.** & Gould, H.J. *Biochemistry*, **37**, 8863-8869, 1998.

The structure of a human rheumatoid factor bound to IgG Fc. **Sutton, B.J.**, Corper, A.L., Sohi, M.K., Jefferis, R., Beale, D. & Taussig, M.J. *Adv. Exp. Med. Biol.*, **435**, 41-50, 1998.

Identification of contact residues in the IgE binding site of human Fc $\epsilon$ RI $\alpha$ . Cook, J.P.D., Henry, A.J., McDonnell, J.M., Owens, R.J., **Sutton, B.J.** & Gould, H.J. *Biochemistry*, **36**, 15579-15588, 1997.

Participation of the N-terminal region of C $\epsilon$ 3 in the binding of human IgE to its high affinity receptor Fc $\epsilon$ RI. Henry, A.J., Cook, J.P.D., McDonnell, J.M., Mackay, G.A., Shi, J., **Sutton, B.J.** & Gould, H.J. *Biochemistry*, **36**, 15568-15578, 1997.

Peptide analogs which inhibit IgE-Fc $\epsilon$ RI $\alpha$  interactions ameliorate the development of lethal graft-versus-host-disease. Korngold, R., Jameson, B., McDonnell, J.M., Leighton, C., **Sutton, B.J.**, Gould, H.J. & Murphy, G.F. *Biology Blood Marrow Transplantation*, **3**, 187-193, 1997.

Human thyroid peroxidase (TPO) isoforms, TPO-1 and TPO-2: Analysis of protein expression in Graves' thyroid tissue. Gardas, A., Lewartowska, A., **Sutton, B.J.**, Pasięka, Z., McGregor, A.M. & Banga, J.P. *J. Clin. Endocrinol. & Metabolism*, **82**, 3752-3757, 1997.

Purification and crystallisation of the autoantigen, thyroid peroxidase from human Graves' thyroid tissue. Gardas, A., Sohi, M.K., **Sutton, B.J.**, McGregor, A.M. & Banga, J.P. *Biochem. Biophys. Res. Comm.*, **234**, 366-370, 1997.

Structural analysis of anti-DNA antibodies. Kalsi, J.K. & **Sutton, B.J.** *Lupus*, **6**, 317-320, 1997.

Rheumatoid factors: Where are we now? Soltys, A.J., Axford, J.S. & **Sutton, B.J.** *Annals Rheumatic Diseases*, **56**, 285-286, 1997.

Structure of human IgM rheumatoid factor Fab bound to its autoantigen IgG Fc reveals a novel topology of antibody-antigen interaction. Corper, A.L., Sohi, M.K., Bonagura, V.R., Steinitz, M., Jefferis, R., Feinstein, A., Beale, D., Taussig, M.J. & **Sutton, B.J.** *Nature Structural Biology*, **4**, 374-381, 1997.

Solution structures of FcεRI α-chain mimics: a β-hairpin peptide and its retroenantiomer. McDonnell, J.M., Fushman, D., Cahill, S.M., **Sutton, B.J.** & Cowburn, D. *J. Am. Chem. Soc.*, **119**, 5321-5328, 1997.

Basis of the 1:1 stoichiometry of the high affinity receptor FcεRI-IgE complex. Keown, M.B., Ghirlando, R., Mackay, G.A., **Sutton, B.J.** & Gould, H.J. *Eur. Biophysical J.*, **25**, 471-476, 1997.

Interaction of the low affinity receptor CD23/FcεRII lectin domain with the Fcε3-4 fragment of human IgE. Shi, J., Ghirlando, R., Bevil, R.L., Bevil, A.J., Keown, M.B., Young, R.J., Owens, R.J., **Sutton, B.J.** & Gould, H.J. *Biochemistry*, **36**, 2112-2122, 1997.

Cleavage of the low affinity receptor for human IgE (CD23) by a mite cysteine protease: nature of the cleaved fragment in relation to the structure and function of CD23. Schultz, O., **Sutton, B.J.**, Bevil, R.L., Shi, J., Sewell, H.F., Gould, H.J., Laing, P. & Shakib, F. *Eur. J. Immunol.*, **27**, 584-588, 1997.

Crystallisation of a complex between the Fab fragment of a human IgM rheumatoid factor (RF-AN) and the Fc fragment of human IgG4. Sohi, M.K., Corper, A.L., Wan, T., Steinitz, M., Jefferis, R., Beale, D., He, M., Feinstein, A., **Sutton, B.J.** & Taussig, M.J. *Immunology*, **88**, 636-641, 1996.

Structure based design and characterization of peptides that inhibit IgE binding to its high affinity receptor. McDonnell, J.M., Bevil, A.J., Mackay G.A., Jameson, B.A., Korngold R., Gould, H.J. & **Sutton, B.J.** *Nature Structural Biology*, **3**, 419-426, 1996.

Equilibrium and pre-equilibrium fluorescence spectroscopic studies of the binding of a single immunoglobulin-binding domain derived from protein G to the Fc fragment from human IgG1. Walker, K.N., Bottomley, S.P., Popplewell, A.G., **Sutton, B.J.** & Gore, M.G. *Biochem. J.*, **310**, 177-184, 1995.

Elution of human IgG from affinity columns containing immobilised variants of protein A. Bottomley, S.P., **Sutton, B.J.** & Gore, M.J. *J. Immunol. Meth.*, **182**, 185-192, 1995.

Crystallisation and X-ray analysis of a single Fab binding domain from protein L of *Peptostreptococcus magnus*. Sohi, M.K., Wan, T., **Sutton, B.J.**, Atkinson, T., Atkinson, M.A., Murphy, J.P., Bottomley, S.P. and Gore, M.G. *Proteins: Structure, Function and Genetics*, **23**, 610-612, 1995.

Bent domain structure of recombinant human IgE-Fc in solution by X-ray and neutron scattering in conjunction with an automated curve fitting procedure. Bevil A.J., Young R.J., **Sutton B.J.** & Perkins S.J. *Biochemistry*, **34**, 14449-14461, 1995.

Hydrodynamic studies of a complex between the Fc fragment of human IgE and a soluble fragment of the FcεRI α-chain. Keown, M.B., Ghirlando, R., Young, R.J., Bevil, A.J., Owens, R.J., Perkins, S.J., **Sutton, B.J.** & Gould, H.J. *Proc. Natl. Acad. Sci. USA*, **92**, 1841-1845, 1995.

Secretion of recombinant human IgE-Fc by mammalian cells and biological activity of glycosylation site mutants. Young, R.J., Owens, R.J., Mackay, G.A., Chan, C.M.W., Shi, J., Hide, M., Francis, D.M., Henry, A.J., **Sutton, B.J.** & Gould, H.J. *Protein Engineering*, **8**, 193-199, 1995.

The stability and unfolding of an IgG-binding protein based upon the B-domain of protein A from *Staphylococcus aureus* probed by tryptophan substitution and fluorescence spectroscopy. Bottomley, S.P., Popplewell, A.G., Scawen, M., Wan, T., **Sutton, B.J.** & Gore, M.G. *Protein Engineering*, **7**, 1463-1470, 1994.

Crystallisation and preliminary X-ray analysis of the Fab fragment of a human monoclonal IgM rheumatoid factor (2A2). Sohi, M.K., **Sutton, B.J.**, Corper, A.L., Wan, T., Maini, R.N., Brown, C., Rijnders, T., Beale, D., Feinstein, A., Humphries, A.S. & Taussig, M.J. *J. Mol. Biol.*, **242**, 706-708, 1994.

The Human IgE Network. **Sutton, B.J.** & Gould, H.J. *Nature*, **366**, 421-428, 1993.

Molecular basis of antigen-antibody reactions: structural aspects. **Sutton, B.J.** *Methods of Immunological Analysis*, **1**, 66-79, 1993.

$\alpha$ -helical coiled-coil stalks in the low affinity receptor for IgE (Fc $\epsilon$ RII/CD23) and related C-type lectins. Beavil, A.J., Edmeades, R.L., Gould, H.J. & **Sutton, B.J.** *Proc. Natl. Acad. Sci., USA*, **89**, 753-757, 1992.

Solution structure of human and mouse immunoglobulin M by synchrotron X-ray scattering and molecular graphics modelling. A possible mechanism for complement activation. Perkins, S.J., Nealis, A.S., **Sutton, B.J.** & Feinstein, A. *J. Mol. Biol.*, **221**, 1345-1366, 1991.

CD23/Fc $\epsilon$ RII: C-type lectin membrane protein with a split personality? Gould, H.J., **Sutton, B.J.**, Edmeades, R.L. & Beavil, A.J. *Monographs in Allergy*, **29**, 28-49, 1991.

Immunoglobulin E Receptors. Gould, H.J., **Sutton, B.J.**, Beavil, A.J., Edmeades, R.L. & Martin, D. *Clin. Exp. Allergy*, **21**, 138-147, 1991.

A preliminary molecular structure of the major house dust mite allergen Der p1. Beavil, A.J., **Sutton, B.J.**, Hart, D.T., Hill, M.R. & Hart, B.J. *Clin. Exp. Allergy*, **20**, 46, 1990.

Prediction of domain organisation and secondary structure of thyroid peroxidase, a human autoantigen involved in destructive thyroiditis. Banga, J.P., Mahadevan, D., Barton, G.J., **Sutton, B.J.**, Saldanha, J., Odell, E. & McGregor, A.M. *FEBS Lett.*, **266**, 133-141, 1990.

Molecular models of 3-dimensional structures of chloroplast and cytoplasmic phosphoglycerate kinase from wheat. McMorro, E.M., **Sutton, B.J.** & Bradbeer, J.W. *Curr. Res. Photosynthesis*, **4**, 147-150, 1990.

Immunoglobulin structure and function: interaction between antibody and antigen. **Sutton, B.J.** *Curr. Opinion in Immunol.*, **2**, 106-113, 1989.

Antiparasitic drug design. Hart, D.T., Langridge, A., Barlow D.J. & **Sutton, B.J.** *Parasitology Today*, **5**, 117-120, 1989.

Antigen recognition by B cells: antibody-antigen interactions at the atomic level. **Sutton, B.J.** *Immunology*, **supp.1**, 31-34, 1988.

Preliminary Crystallographic Analysis of Human Myeloperoxidase. **Sutton, B.J.**, Little, C., Olsen, R.L. & Willassen, N.P. *J. Mol. Biol.*, **199**, 395-396, 1988.

X-ray Crystallographic Study of beta-lactamase II from Bacillus cereus at 0.35nm Resolution. **Sutton, B.J.**, Artymiuk, P.J., Cordero-Borboa, A., Little, C., Phillips, D.C. & Waley, S.G. *Biochem. J.*, **248**, 181-188, 1987.

Crystallographic Studies of the beta-lactamases from Bacillus cereus. Phillips, D.C., Cordero-Borboa, A., **Sutton, B.J.** & Todd, R.J. *Pure & Appl. Chem.*, **59**, 279-286, 1987.

Tertiary Structural Similarity Between a Class A Beta-lactamase and a Penicillin-Sensitive D-alanyl Carboxypeptidase-Transpeptidase. Samraoui, B., **Sutton, B.J.**, Todd, R.J., Artymiuk, P.J., Waley, S.G. & Phillips, D.C. *Nature*, **320**, 378-380, 1986.

Modelling of the Combining Sites of Three Anti-lysozyme Monoclonal Antibodies and of the Complex of one of the Antibodies and its Epitope. de la Paz, P., **Sutton, B.J.**, Darsley, M.J. & Rees, A.R. *EMBO J.*, **5**, 415-425, 1986.

Rheumatoid and Osteoarthritis are Associated with the Glycosylation Pattern of Total Serum IgG. Parekh, R.B., Dwek, R.A., **Sutton, B.J.** et al. *Nature*, **316**, 452-457, 1985.

An Approach to the Study of Anti-protein Antibody Combining Sites. Darsley, M.J., de la Paz, P., Phillips, D.C., Rees, A.R. & **Sutton, B.J.**  
*Methodological Surveys in Biochem. & Analysis*, **15**, 63-68, 1985.

The three-dimensional structure of the carbohydrate within the Fc fragment of immunoglobulin G. **Sutton, B.J.** & Phillips, D.C. *Biochem. Soc. Trans.*, **11**, 130-132, 1983.

Crystallographic Studies of Immunoglobulins: Crystallisation of the Fc Fragment of Rabbit IgG With and Without Cleavage of the Inter-Chain Disulphide Bridge. Aschaffenburg, R.A., Lewis, M., Phillips, D.C., Press, E.M., Smith, S.G., **Sutton, B.J.** & Wright Mountford, C. *J. Mol. Biol.*, **135**, 1033-1036, 1979.

Crystallisation of the Fv fragment of myeloma protein M315. Aschaffenburg, R.A., Phillips, D.C., Rose, D.R., **Sutton, B.J.**, Dower S.K. & Dwek, R.A. *Biochem. J.*, **181**, 497-499, 1979.

Preliminary crystallographic data for beta-lactamase I from *Bacillus cereus* 569. Aschaffenburg, R.A., Phillips, D.C., Baldwin, G., Kiener, P.A., Waley, S.G. & **Sutton, B.J.**  
*J. Mol. Biol.*, **120**, 447-449, 1978.

The combining site of the dinitrophenyl-binding IgA myeloma protein MOPC 315. Dower, S.K., Wain-Hobson, S., Givol, D., Gettins, P.J., Jackson R., Sunderland, C.A., Perkins, S.J., **Sutton, B.J.** & Dwek, R.A. *Biochem. J.*, **165**, 207-225, 1977.

Comparison of the dimensions of the combining sites of the dinitrophenyl-binding immunoglobulin A myeloma proteins MOPC 315, MOPC 460, XRPC 25. Willan K.J., Marsh, D., Sunderland, C.A., **Sutton, B.J.**, Wain-Hobson, S., Dwek, R.A. & Givol, D.  
*Biochem. J.*, **165**, 199-206, 1977.

The gross architecture of an antibody combining site as determined by spin-label mapping. **Sutton, B.J.**, Gettins, P.J., Givol, D., Marsh, D., Wain-Hobson, S., Willan, K.J. & Dwek, R.A.  
*Biochem. J.*, **165**, 177-197, 1977.

Structure of an antibody combining site by magnetic resonance. Dwek, R.A., Wain-Hobson, S., Dower, S.K., Gettins, P., **Sutton, B.J.**, Perkins, S.J. & Givol, D. *Nature*, **266**, 31-37, 1977.

### **Book chapters:**

IgE and IgE Receptors. **Sutton, B.J.**, Bevil, R.L., Bevil, A.J. & Hunt, J. In *Allergy and Allergic Diseases* (Ed. Kay A.B.) 2<sup>nd</sup> Edn. Blackwell Scientific Publishers, 2008.

Immunoglobulin – Fc receptor interactions. **Sutton, B.J.**, Bevil, R.L. & Bevil, A.J. In *Handbook of Cell Signalling* (Eds. Bradshaw, R.A. & Dennis, E.A.) Vol. I, Chapter 8, pp 45-49, Elsevier Science, 2003.

Regulation of IgE-mediated inflammation by soluble fragments of the high affinity IgE receptor. **Sutton, B.J.** & Gould H.J. In *Immunotherapy of Asthma* (Ed. Bousquet, J.) Ch.26, pp 411-429, Marcel Dekker Inc., 1999.

IgE and IgE Receptors. **Sutton, B.J.** & Gould, H.J. In *Allergy and Allergic Diseases* (Ed. Kay A.B.) Ch. 5, pp 81-95, Blackwell Scientific Publishers, 1997.

The Structural Basis of IgE-receptor interactions in the allergic response. **Sutton, B.J.**, Bevil, A.J., Bevil, R.L., Young, R.J. & Gould, H.J. In *Allergic Mechanisms and Immunotherapeutic Strategies* (Eds. Roberts, A.M & Walker, M.R.) Ch.2, pp 17-31, John Wiley & Sons, 1997.

IgE Homeostasis: Is CD23 the safety switch? Gould, H.J., Bevil, R.L., Reljic, R., Shi, J., **Sutton, B.J.** & Ghirlando, R. In *Molecular Mechanisms of IgE Regulation* (Ed. Vercelli, D.) Ch. 3, pp 37-59, J. Wiley & Sons Ltd., 1997.

Intimations of Evolution from the Three Dimensional Structure of Proteins. Phillips, D.C., Sternberg, M.J.E. & **Sutton, B.J.** In *Evolution from Molecules to Men*, Ch. 8, 145-173, Cambridge University Press, 1983.

### **Current patents:**

"*Anti-IgE Antibodies*", patent no. WO 2017/211928, 2017.  
Adams, R., Ceska, T. A., Davies, A. M., Henry, A. J., Liu, X., McDonnell, J. M., Sutton, B. J. & Westwood, M. K., 14 Dec 2017, Patent No. WO 2017/211928 A1, 8 Jun 2017, Priority date 10 Jun 2016, Priority No. 1610198.2

"*Thiophene derivatives for the treatment of disorders caused by IgE*",  
patent no. WO 2019/243550, 2019.