TABLE OF CONTENTS

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

INTRODUCTION

A growing number of medicines are based on biological molecules such as proteins and monoclonal antibodies. These novel drugs have resulted in new, more effective treatments for a number of serious conditions. Yet sometimes these medicines trigger a response from the patient's immune system, which can decrease the effectiveness of the drug or cause severe side effects.

The aim of the IMI-founded ABIRISK project **"Anti-Biopharmaceutical Immunization: Prediction and Analysis of Clinical Re to Minimize the Risk",** is to shed new light on the factors behind this immune response. The project, which represents the first concerted effort to solve this problem, officially kicked off March 1st, 2012. ABIRISK project will aid in the creation of new, safer **biopharmaceuticals (BPs)** and also generate tools to determine how individual patients are likely to respond to them both in clinical trials and after release to the market.

The ABIRISK consortium (presently made up of thirty-five partners, twenty-four of which are academic institutions, nine are EFPIA member companies and two are small and medium enterprises, with thirteen countries represented), has been designed to meet all of these requirements in order to target three types of disorders: **Hemophilia A, Multiple sclerosis and Inflammatory diseases: inflammatory rheumatisms (including rheumatoid arthritis) and inflammatory bowel diseases.**

ABIRISK Project will collect data both retrospectively from patients suffering from various types of diseases and treated with various BPs at European centers with a high level of experience in clinical research and will prospectively recruit additional patients in dedicated studies during the 5 years of this program. Guidelines and Standard Operating Protocols for the study of anti-drug immunization will be established and used to standardize the collection of prospective data from these patients.

ABIRISK Project thus represents a unique opportunity to create an interdisciplinary task force of clinical centers especially designed to study immune responses against biopharmaceuticals.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

WELCOME

Dear Reader,

We would like to welcome you to the March 2016 **ABIRISK Scientific Newsletter**. The Scientific Newsletter gives you a monthly update on the most relevant literature related to ABIRISK topics published around the globe, both inside and outside ABIRISK consortium.

This month again we are drawing your attention to a selection of articles that we think make a difference in their respective fields.

In addition, you will find in this issue some regulatory news on biopharmaceuticals

We look forward to your visit on **ABIRISK** website for more information and updates on the program.

Enjoy reading !

Best wishes

The ABIRISK management team

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

LITERATURE

This month's selected articles

1. A holistic consideration on the topic of immunecomplexes which I have been able to share with multiple disciplines from bioanalytsts, toxicologists and clinicians. This one review is an excellent starting point for anyone embarking on or indeed refining an immunogenicity risk assessment, a thoroughly useful document :

Immunogenicity to Biotherapeutics - The Role of Anti-drug Immune Complexes.
Krishna M, Nadler SG.
Front Immunol. 2016 Feb 2;7:21.

2. An interesting discussion highlighting the difficulty to compare immunogenicity of biosimilars with the initial product :

Reporting of potential immunogenicity with biologic drugs: clarity and accuracy required.
Moots RJ, Balsa A, Wolbink G.
Ann Rheum Dis. 2016 Feb 4.

Response to: 'Reporting of potential immunogenicity with biologic drugs: clarity and accuracy required' by Moots et al.
Emery P, Vencovský J, Ghil J.
Ann Rheum Dis. 2016 Feb 17

3. The third version of the IEDB. Born in 2004, this outstanding database continues to be active and to provide us with new epitope sequences and innovative tools of prediction:

The immune epitope database (IEDB) 3.0.
Vita R, Overton JA, Greenbaum JA, Ponomarenko J, Clark JD, Cantrell JR, Wheeler DK, Gabbard JL, Hix D, Sette A, Peters B.
Nucleic Acids Res. 2015 Jan;43(Database issue):D405-12.

4. This study confirms the previously observed heterogeneous nature of Relapsing Remitting Multiple Sclerosis and suggests that stratification of patients by the means of biomarkers can be informative for prognosis and treatment response :

Cytokine profiles show heterogeneity of interferon-β response in multiple sclerosis patients.
Hegen H, Adrianto I, Lessard CJ, Millonig A, Bertolotto A, Comabella M, Giovannoni G, Guger M, Hoelzl M, Khalil M, Fazekas F, Killestein J, Lindberg RL, Malucchi S, Mehling M, Montalban X, Rudzki D, Schautzer F, Sellebjerg F, Sorensen PS, Deisenhammer F, Steinman L, Axtell RC.
Neurol Neuroimmunol Neuroinflamm. 2016 Jan 27;3(2):e202.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Immunogenicity

The role of previously untreated patient studies in understanding the development of FVIII inhibitors.
Carcao M, Re W, Ewenstein B.
Haemophilia. 2016 Jan;22(1):22-31.

The Impact of Methylprednisolone Pulses during Relapses of Multiple Sclerosis on the Kinetics of Anti-Interferon-Beta Antibodies.
Giantzi V, Karapanayiotides T, Lagoudaki R, Poulatsidou KN, Lourbopoulos A, Daniilidis M, Taskos N, Milonas I, Grigoriadis N.
Eur Neurol. 2016;75(1-2):82-8

Presence of antidrug antibodies correlates inversely with the plasma tumor necrosis factor (TNF)-α level and the efficacy of TNF-inhibitor therapy in psoriasis.
Kui R, Gál B, Gaál M, Kiss M, Kemény L, Gyulai R.
J Dermatol. 2016 Feb 19.

Engineering less immunogenic and antigenic FVIII proteins.
Pratt KP.
Cell Immunol. 2016 Mar;301:12-7.

High level of anti-drug antibodies after intra-articular injection of anti-TNF.
Zufferey P, Perreau M, So A.
Rheumatology (Oxford). 2015 Dec;54(12):2291-2.

Immunogenicity of Therapeutic Protein Aggregates.
Moussa EM, Panchal JP, Moorthy BS, Blum JS, Joubert MK, Narhi LO, Topp EM.
J Pharm Sci. 2016 Feb;105(2):417-30.

Methods

Affinity capture elution bridging assay: A novel immunoassay format for detection of anti-therapeutic protein antibodies.
Chen YQ, Pottanat TG, Carter QL, Troutt JS, Konrad RJ, Sloan JH.
J Immunol Methods. 2016 Feb 10

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Aggregation Kinetics for IgG1-Based Monoclonal Antibody Therapeutics.
Singla A, Bansal R, Joshi V, Rathore AS.
AAPS J. 2016 Feb 22

Targeting inflammatory bowel diseases by nanocarriers loaded with small and biopharmaceutical anti-inflammatory drugs.
Beloqui A, Coco R, Préat V.
Curr Pharm Des. 2016 Feb 11.

Artificial antigen presenting cells expressing HLA class II molecules as an effective tool for amplifying human specific memory CD4+ T cells.
Garnier A, Hamieh M, Drouet A, Leprince J, Vivien D, Frébourg T, Le Mauff B, Latouche JB, Toutirais O.
Immunol Cell Biol. 2016 Feb 29.

Establishment of a cell model for screening antibody drugs against rheumatoid arthritis with ADCC and CDC.
Yan L, Hu R, Tu S, Cheng WJ, Zheng Q, Wang JW, Kan WS, Ren YJ.
Int J Clin Exp Med. 2015 Nov 15;8(11):20065-71.

Reproducibility and conflicts in immune epitope data.
Vita R, Vasilevsky N, Bandrowski A, Haendel M, Sette A, Peters B.
Immunology. 2016 Mar;147(3):349-54.

Animal models

Waiving in vivo studies for monoclonal antibody biosimilar development: national and global challenges.
Chapman K, Adjei A, Baldrick P, da Silva A, De Smet K, DiCicco R, Hong SS, Jones D, Leach MW, McBlane J, Ragan I, Reddy P, Stewart DI, Suitters A, Sims J.
MAbs. 2016 Feb 6:0.

Characterization of a genetically engineered mouse model of hemophilia A with complete deletion of the F8 gene.
Chao BN, Baldwin WH, Healey JF, Parker ET, Shafer-Weaver K, Cox C, Jiang P, Kanellopoulou C, Lollar P, Meeks SL, Lenardo MJ.
J Thromb Haemost. 2016 Feb;14(2):346-55.

Immunogenicity of Recombinant Human Interferon Beta-1b in Immune-Tolerant Transgenic Mice Corresponds with the Biophysical Characteristics of Aggregates.
Haji Abdolvahab M, Fazeli A, Halim A, Sediq AS, Fazeli MR, Schellekens H
J Interferon Cytokine Res. 2016 Feb 2

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Biosimilars

Pharmacokinetics, pharmacodynamics, short-term efficacy and safety of RCT-18, A Novel BLyS/APRIL fusion protein, in patients with rheumatoid arthritis.
Chen X, Zhao Q, Hou Y, Jiang J, Zhong W, Wang W, Yao X, Li L, Fang J, Zhang F, Hu P.
Br J Clin Pharmacol. 2016 Feb 25

A phase I pharmacokinetics trial comparing PF-05280586 (a potential biosimilar) and rituximab in patients with active rheumatoid arthritis.
Cohen S, Emery P, Greenwald M, Yin D, Becker JC, Melia LA, Li R, Gumbiner B, Thomas D, Spencer-Green G, Meng X.
Br J Clin Pharmacol. 2016 Feb 22.

Current status of biosimilars in the treatment of inflammatory bowel diseases.
Park DI.
Intest Res. 2016 Jan;14(1):15-20.

Key design considerations on comparative clinical efficacy studies for biosimilars: adalimumab as an example.
Lai Z, La Noce A.
RMD Open. 2016 Feb 5;2(1):e000154.

Biomarkers

MxA mRNA expression as a biomarker of interferon beta response in multiple sclerosis patients.
Matas E, Bau L, Martínez-Iniesta M, Romero-Pinel L, Mañé-Martínez MA, Cobo-Calvo Á, Martínez-Yélamos S.
J Neuroimmunol. 2016 Feb 15;291:73-7.

Changes in anti-cyclic citrullinated peptide antibodies and rheumatoid factor isotypes serum levels in patients with rheumatoid arthritis following treatment with different biological drugs.
Iannone F, Tampoia M, Giannini M, Lopalco G, Cantarini L, Villalta CD, Galeazzi M, Lapadula G.
Clin Exp Rheumatol. 2016 Feb 9.

Systemic Lupus Erythematosus

Abatacept for the Treatment of Systemic Lupus Erythematosus.
Pimentel-Quiroz VR, Alarcón GS, Ugarte-Gil MF.
Expert Opin Investig Drugs. 2016 Feb 15.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Emerging therapies in Systemic lupus erythematous: From clinical trial to the real life.
Zhang H, Chambers W, Sciascia S, Cuadrado MJ.
Expert Rev Clin Pharmacol. 2016 Feb 23.

Arthritis

Sarilumab for the treatment of rheumatoid arthritis.
Cooper S.
Immunotherapy. 2016 Mar;8(3):249-50.

Decreased use of glucocorticoids in biological-experienced patients with rheumatoid arthritis who initiated intravenous abatacept: results from the 2-year ACTION study.
Alten R, Nüßlein H, Galeazzi M, Lorenz HM, Nurmohamed MT, Bensen WG, Burmester GR, Peter HH, Pavelka K, Chartier M, Poncet C, Rauch C, Elbez Y, Le Bars M.
RMD Open. 2016 Feb 15;2(1):e000228.

The Challenge of Treating Early-Stage Rheumatoid Arthritis: The Contribution of Mixed Treatment Comparison to Choosing Appropriate Biologic Agents.
Migliore A, Bizzi E, Petrella L, Bruzzese V, Cassol M, Integlia D.
BioDrugs. 2016 Feb 23.

Effectiveness of two different doses of rituximab for the treatment of rheumatoid arthritis in an international cohort: data from the CERERRA collaboration.
Chatzidionysiou K, Lie E, Nasonov E, Lukina G, Hetland ML, Tarp U, Ancuta I, Pavelka K, Nordström DC, Gabay C, Canhão H, Tomsic M, van Riel PL, Gomez-Reino J, Kvien TK, van Vollenhoven RF; Rheumatic Diseases Portuguese Register.
Arthritis Res Ther. 2016 Feb 16;18(1):50.

A randomised trial evaluating anakinra in early active rheumatoid arthritis.
Scott IC, Ibrahim F, Simpson G, Kowalczyk A, White-Alao B, Hassell A, Plant M, Richards S, Walker D, Scott DL.
Clin Exp Rheumatol. 2016 Jan-Feb;34(1):88-93.

Adalimumab discontinuation in patients with early rheumatoid arthritis who were initially treated with methotrexate alone or in combination with adalimumab: 1 year outcomes of the HOPEFUL-2 study.
Tanaka Y, Yamanaka H, Ishiguro N, Miyasaka N, Kawana K, Hiramatsu K, Takeuchi T.
RMD Open. 2016 Feb 18;2(1):e000189.

Tocilizumab for treating juvenile idiopathic arthritis.
Turnier JL, Brunner HI.
Expert Opin Biol Ther. 2016 Feb 27:1-8.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

A phase III, multicentre, randomised, double-blind, active-controlled, parallel-group trial comparing safety and efficacy of HD203, with innovator etanercept, in combination with methotrexate, in patients with rheumatoid arthritis: the HERA study.
Bae SC, Kim J, Choe JY, Park W, Lee SH, Park YB, Shim SC, Lee SS, Sung YK, Choi CB, Lee SR, Park H, Ahn Y; HERA Study Investigators.
Ann Rheum Dis. 2016 Feb 23.

Inflammatory Bowel Diseases

Approach to Optimize Anti-TNF-α Therapy in Patients With IBD.
Komaki Y, Komaki F, Sakuraba A, Cohen R.
Curr Treat Options Gastroenterol. 2016 Feb 12.

The safety of vedolizumab for ulcerative colitis and Crohn's disease.
Colombel JF, Sands BE, Rutgeerts P, Sandborn W, Danese S, D'Haens G, Panaccione R, Loftus EV Jr, Sankoh S, Fox I, Parikh A, Milch C, Abhyankar B, Feagan BG.
Gut. 2016 Feb 18.

Long-Term Follow-Up of Patients Treated with Infliximab for Ulcerative Colitis: Predictive Factors of Response-An Observational Study.
García-Bosch O, Aceituno M, Ordás I, Etchevers J, Sans M, Feu F, Panés J, Ricart E.
Dig Dis Sci. 2016 Feb 26.

A Retrospective Comparison of Infliximab vs Adalimumab as Induction and Maintenance Therapy for Crohn's Disease.
Varma P, Paul E, Huang C, Headon B, Sparrow MP.
Intern Med J. 2016 Feb 10.

Effectiveness and Safety of Vedolizumab Induction Therapy for Patients with Inflammatory Bowel Disease.
Amiot A, Grimaud JC, Peyrin-Biroulet L, Filippi J, Pariente B, Roblin X, Buisson A, Stefanescu C, Trang-Poisson C, Altwegg R, Marteau P, Vaysse T, Bourrier A, Nancey S, Laharie D, Allez M, Savoye G, Moreau J, Gagniere C, Vuitton L, Viennot S, Aubourg A, Pelletier AL, Bouguen G, Abitbol V, Bouhnik Y; OBSERV-IBD study group and the GETAID.
Clin Gastroenterol Hepatol. 2016 Feb 22

Etrolizumab for Ulcerative Colitis: The new kid on the block?
Makker J Md, Hommes DW Md.
Expert Opin Biol Ther. 2016 Feb 25.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Immunomodulators for the treatment of Crohn's disease in adults: optimal use and prospects for future drug treatments.
Allen PB, Peyrin-Biroulet L.
Expert Rev Clin Immunol. 2016 Feb 22.

Mechanism of action of anti-TNF therapy in inflammatory bowel disease.
Levin AD, Wildenberg ME, van den Brink GR.
J Crohns Colitis. 2016 Feb 19.

Anti-TNF-A Therapy about Infliximab and Adalimamab for the Effectiveness in Ulcerative Colitis Compared with Conventional Therapy: A Meta-Analysis.
Zhou Z, Dai C, Liu WX.
Hepatogastroenterology. 2015 Jun;62(140):829-37.

Review of vedolizumab for the treatment of ulcerative colitis.
Lau MS, Tsai HH.
World J Gastrointest Pharmacol Ther. 2016 Feb 6;7(1):107-11.

Vedolizumab for induction and maintenance of remission in ulcerative colitis: a Cochrane systematic review and meta-analysis.
Mosli MH, MacDonald JK, Bickston SJ, Behm BW, Tsoulis DJ, Cheng J, Khanna R, Feagan BG.
Inflamm Bowel Dis. 2015 May;21(5):1151-9.

Multiple Sclerosis

Long-term adherence of patients with relapsing-remitting multiple sclerosis to subcutaneous self-injections of interferon β-1a using an electronic device: the RIVER study.
Lugaresi A, De Robertis F, Clerico M, Brescia Morra V, Centonze D, Borghesan S, Maniscalco GT, On Behalf Of The River Study Group.
Expert Opin Drug Deliv. 2016 Feb 24:1-5.

Recent Advances in Monoclonal Antibody Therapies for Multiple Sclerosis.
Wootla B, Watzlawik JO, Stavropoulos N, Wittenberg NJ, Dasari H, Abdelrahim MA, Henley JR, Oh SH, Warrington AE, Rodriguez M.
Expert Opin Biol Ther. 2016 Feb 25.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Population Pharmacokinetics of Daclizumab High-Yield Process in Healthy Volunteers and Subjects with Multiple Sclerosis: Analysis of Phase I-III Clinical Trials.
Diao L, Hang Y, Othman AA, Nestorov I, Tran JQ.
Clin Pharmacokinet. 2016 Feb 12.

Multiparametric flow cytometric analysis of whole blood reveals changes in minor lymphocyte subpopulations of multiple sclerosis patients.
Teniente-Serra A, Grau-López L, Mansilla MJ, Fernández-Sanmartín M, Ester Condins A, Ramo-Tello C, Martínez-Cáceres E.
Autoimmunity. 2016 Feb 1:1-10.

A robust type I interferon gene signature from blood RNA defines quantitative but not qualitative differences between three major IFNβ drugs in the treatment of multiple sclerosis.
Harari D, Orr I, Rotkopf R, Baranzini SE, Schreiber G.
Hum Mol Genet. 2015 Jun 1;24(11):3192-205.

Minocycline added to subcutaneous interferon β-1a in multiple sclerosis: randomized RECYCLINE study.
Sørensen PS, Sellebjerg F, Lycke J, Färkkilä M, Créange A, Lund CG, Schluep M, Frederiksen JL, Stenager E, Pfleger C, Garde E, Kinnunen E, Marhardt K; RECYCLINE Study Investigators.
Eur J Neurol. 2016 Feb 5.

A Randomized Trial Evaluating Various Administration Routes of Natalizumab in Multiple Sclerosis.
Plavina T, Fox EJ, Lucas N, Muralidharan KK, Mikol D.
J Clin Pharmacol. 2016 Feb 2

Hemophilia

T cell response to FVIII.
Jacquemin M, Saint-Remy JM.
Cell Immunol. 2016 Mar;301:8-11.

Strategies to target long-lived plasma cells for treating hemophilia A inhibitors.
Liu CL, Lyle MJ, Shin SC, Miao CH.
Cell Immunol. 2016 Mar;301:65-73.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

The anti-CD20 monoclonal antibody rituximab to treat acquired haemophilia A.
D'arena G, Grandone E, Di Minno MN, Musto P, Di Minno G.
Blood Transfus. 2015 Sep 3:1-7.

Prospective surveillance study of haemophilia A patients switching from moroctocog alfa or other factor VIII products to moroctocog alfa albumin-free cell culture (AF-CC) in usual care settings.
Parra Lopez R, Nemes L, Jimenez-Yuste V, Rusen L, Cid AR, Charnigo RJ, Baumann JA, Smith L, Korth-Bradley JM, Rendo P.
Thromb Haemost. 2015 Oct;114(4):676-84.

Porcine recombinant factor VIII (Obizur; OBI-1; BAX801): product characteristics and preclinical profile.
Lillicrap D, Schiviz A, Apostol C, Wojciechowski P, Horling F, Lai CK, Piskernik C, Hoellriegl W, Lollar P.
Haemophilia. 2015 Aug 17.

In vivo induction of regulatory T cells for immune tolerance in hemophilia.
Wang X, Terhorst C, Herzog RW.
Cell Immunol. 2016 Mar;301:18-29.

Novel, human cell line-derived recombinant factor VIII (Human-cl rhFVIII, Nuwiq®) in children with severe haemophilia A: efficacy, safety and pharmacokinetics.
Klukowska A, Szczepański T, Vdovin V, Knaub S, Jansen M, Liesner R.
Haemophilia. 2015 Sep 14.

Design of clinical trials for new products in hemophilia: communication from the SSC of the ISTH.
Dimichele DM, Lacroix-Desmazes S, Peyvandi F, Srivastava A, Rosendaal FR; Subcommittee on Factor VIII, Factor IX and Rare Coagulation Disorders.
J Thromb Haemost. 2015 May;13(5):876-9.

Reduction of Factor VIII Inhibitor Titers During Immune Tolerance Induction With Recombinant Factor VIII-Fc Fusion Protein.
Groomes CL, Gianferante DM, Crouch GD, Parekh DS, Scott DW, Lieuw K.
Pediatr Blood Cancer. 2016 Jan 6.

Basic immunology

Harnessing the plasticity of CD4(+) T cells to treat immune-mediated disease.
DuPage M, Bluestone JA.
Nat Rev Immunol. 2016 Mar;16(3):149-63.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

T cell migration, search strategies and mechanisms.
Krummel MF, Bartumeus F, Gérard A.
Nat Rev Immunol. 2016 Mar;16(3):193-201.

SHARPIN controls regulatory T cells by negatively modulating the T cell antigen receptor complex.
Park Y, Jin HS, Lopez J, Lee J, Liao L, Elly C, Liu YC.
Nat Immunol. 2016 Mar;17(3):286-96.

Multifunctional role of the transcription factor Blimp-1 in coordinating plasma cell differentiation.
Minnich M, Tagoh H, Bönelt P, Axelsson E, Fischer M, Cebolla B, Tarakhovsky A, Nutt SL, Jaritz M, Busslinger M.
Nat Immunol. 2016 Mar;17(3):331-43.

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

REGULATION

EMA

News and press releases: EMA confirms recommendations to minimise risk of brain infection PML with Tysabri

February 2016

Referral: Article 20 procedures, Tysabri, natalizumab

Updated

February 2016

Pending EC decision: Humira, adalimumab

Opinion date: 25-Feb-2016

Report: Report of the first European Medicines Agency and the European Generic and Biosimilar Medicines Association (EGA) annual bilateral meeting

February 2016

WC500202229.pdf

Human medicines European public assessment report (EPAR): Tysabri, natalizumab

Revision: 21, Authorised

February 2016

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu

Agenda: Agenda - Workshop on immunogenicity assessment of biotechnology-derived therapeutic proteins

Agenda workshop 9th March 2016.pdf

Human medicines European public assessment report (EPAR): Cimzia,certolizumab pegol

Revision: 15, Authorised

February 2016

Scientific guideline: Final guideline on the clinical investigation of recombinant and human plasma-derived factor VIII products

Adopted

February 2016

WC500201773 FVIII.pdf

Scientific guideline: Final guideline on core SmPC for human plasma derived and recombinant coagulation factor VIII products

Adopted

February 2016

WC500201771-FVIII .pdf

The research leading to these results has received support from the Innovative Medicines Initiative Joint Undertaking under grant agreement n° [115303], resources of which are composed of financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution.'
www.imi.europa.eu