American Journal of Transplantation 2013; 13: 861–874
Wiley Periodicals Inc.

doi: 10.1111/ajt.12168

Antiperlecan Antibodies Are Novel Accelerators of Immune-Mediated Vascular Injury

H. Cardinal[a,†], M. Dieudé[a,†], N. Brassard[a], S. Qi[a], N. Patey[b], M. Soulez[a], D. Beillevaire[a], F. Echeverry[c], C. Daniel[c], Y. Durocher[d], F. Madore[e] and M. J. Hébert[a,*]

[a] *Research Centre, Centre hospitalier de l'Université de Montréal (CRCHUM)—Hôpital Notre-Dame and Université de Montréal, Montreal, QC, Canada*
[b] *Research Centre, Hôpital Ste-Justine, Montreal, Quebec, Canada*
[c] *INRS-Institut Armand-Frappier, Laval, QC, Canada*
[d] *Biotechnology Research Institute, Montreal, QC, Canada*
[e] *Research Centre, Hôpital du Sacré-Coeur de Montréal, Montreal, QC, Canada*
* *Corresponding author: Marie-Josée Hébert, marie-josee.hebert.chum@ssss.gouv.qc.ca*
† *Both authors contributed equally to the work*

[Correction made after online publication February 22, 2013: the author names have been updated.]

Acute vascular rejection (AVR) is characterized by immune-mediated vascular injury and heightened endothelial cell (EC) apoptosis. We reported previously that apoptotic ECs release a bioactive C-terminal fragment of perlecan referred to as LG3. Here, we tested the

Key words: Acute rejection, antibodies, apoptosis, kidney transplantation

Abbreviations: ATIR, tubulo-interstitial rejection; AT_1R, angiotensin type 1 receptor; AVR, acute vascular rejection; cPRA, calculated panel reactive antibodies; CDC, complement-dependent cytotoxic; DSA, donor-specific antibodies; EC, endothelial cell; ELISA, enzyme-linked immunosorbent assay; GFR, glomerular filtration rate; KTR, kidney transplant recipients; MFI, mean fluorescence intensity; MICA, MHC class I-related chain A; MICB, MHC class I-related chain B.

Received 09 July 2012, revised 23 November 2012 and accepted for publication 25 November 2012

Introduction

Acute vascular rejection (AVR) of renal allografts is a relatively uncommon yet dramatic condition requiring aggressive immunosuppression and associated with a high rate of permanent graft dysfunction and loss (1). Detectable donor-specific anti-HLA antibodies (DSA) at the time of transplantation or in the early posttransplantation period are the main factor implicated in severe AVR episodes that will rapidly destroy the allograft if not controlled by plasma-