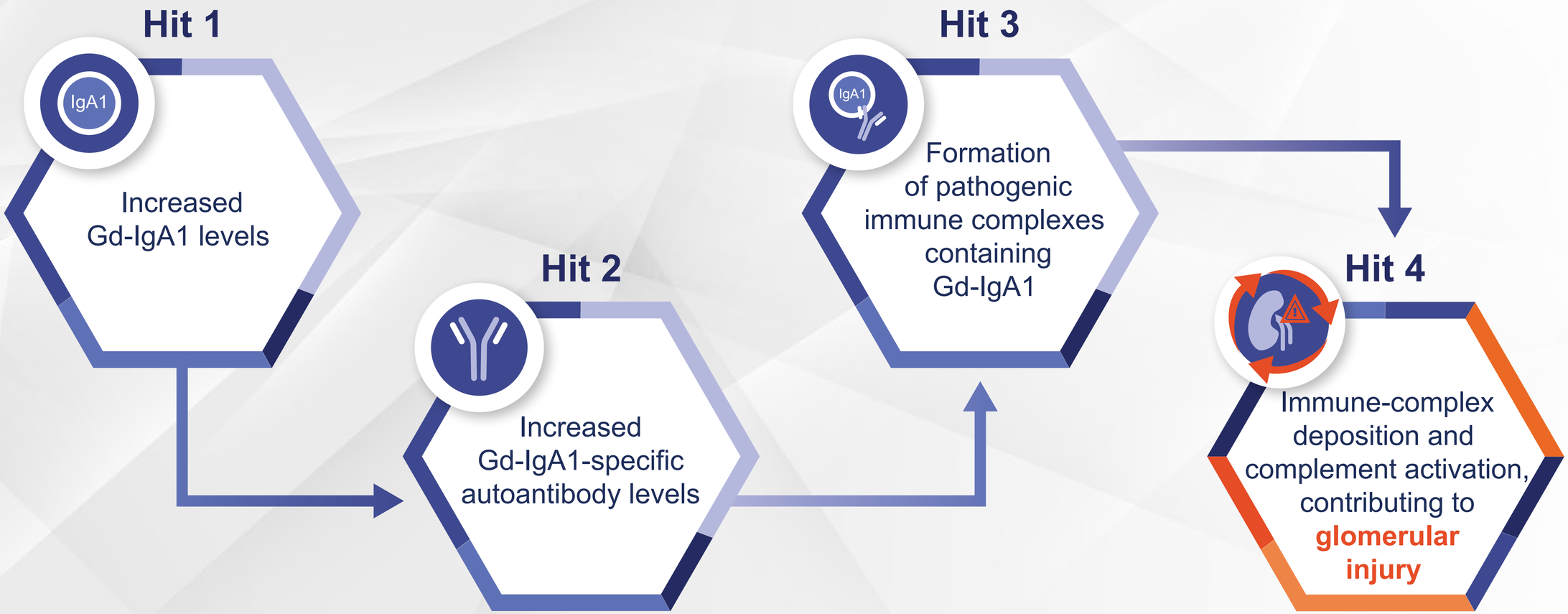
AT A GLANCE

IgA NEPHROPATHY DEVELOPS FOLLOWING FOUR HITS[1-6]



C, complement; ECM, extracellular matrix; GBM, glomerular basement membrane; Gd, galactose-deficient; IgA, immunoglobulin A; MAC, membrane attack complex; PTEC, proximal tubular epithelial cell.

1. Rizk DV et al. *Front Immunol*. 2019;10:504. doi:10.3389/fimmu.2019.00504 2. Maillard N et al. *J Am Soc Nephrol*. 2015;26(7):1503-1512. doi:10.1681/ASN.2014101000 3. Medjeral-Thomas NR et al. *Semin Immunopathol*. 2021;43(5):679-690. doi:10.1007/s00281-021-00882-9 4. Kusano T et al. *Hum Pathol*. 2016;49:135-144. doi:10.1016/j.humpath.2015.10.013 5. Boyd JK et al. *Kidney Int*. 2012;81(9):833-843. doi:10.1038/ki.2011.501 6. Trimarchi H, Coppo R. *Nephrol Dial Transplant*. 2021;36(4):581-586. doi:10.1093/ndt/gfz241 7. Onda K et al. *BMC Nephrol*. 2011;12:64. doi:10.1186/1471-2369-12-64 8. Zhang Y et al. *Clin Exp Immunol*. 2017;189(1):60-70. doi:10.1111/cei.12961 9. Liu L et al. *J Clin Immunol*. 2014;34(2):224-232. doi:10.1007/s10875-013-9970-6 10. Boor P et al. *J Am Soc Nephrol*. 2007;18(5):1508-1515. doi:10.1681/ASN.2006121343 11. Lafayette RA, Kelebouris E. *Am J Nephrol*. 2018;47(suppl 1):43-52. doi:10.1159/000481636

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AT A GLANCE

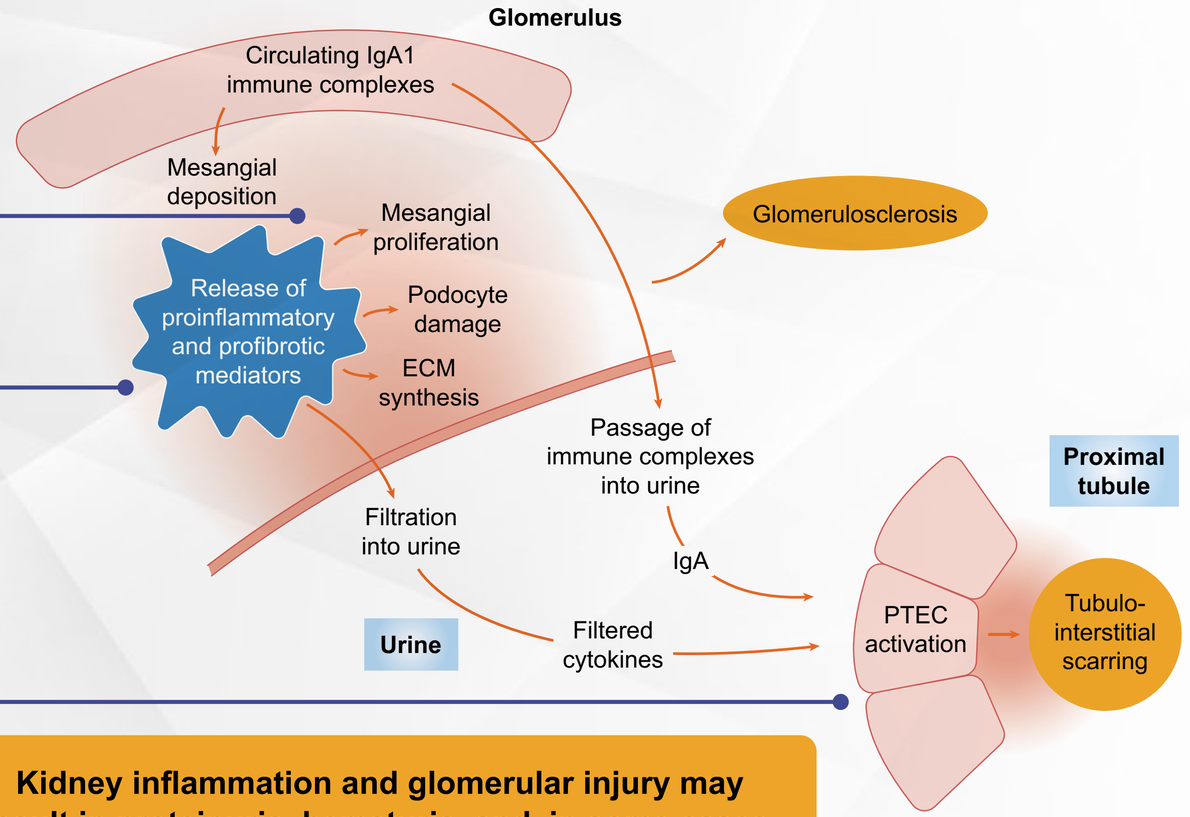
IMMUNE-COMPLEX DEPOSITION FOLLOWED BY COMPLEMENT ACTIVATION CONTRIBUTES TO GLOMERULAR INJURY[1,2,5]

Overactivation of the alternative and, less often, the lectin pathways is involved in the development of IgA nephropathy[1-3,6,7]

C3a and C5a stimulate proliferation of mesangial cells commonly observed upon kidney biopsy[2,8,9]

MAC (C5b-9) increases the release of proteases, cytokines, and components of the ECM that disrupt the GBM, which can induce apoptosis and glomerular scarring[2]

MAC formation on tubular epithelial cells and exposure to C5a can contribute to tubulointerstitial injury and fibrosis[7,10]



Kidney inflammation and glomerular injury may result in proteinuria, hematuria, and, in some cases, chronic kidney disease[1,5,11]

Adapted from Boyd et al.[5]

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