

# C4d ANTIBODIES

BIOMEDICA

Marker for humoral rejection  
of kidney transplants

**Setting** the **standard**  
for **clinical** research.







# Anti C4d BI-RC4D • Anti C4d, FITC BI-RC4D-FITC

## For the identification of human complement split product C4d in paraffin and frozen sections, and by flow cytometry.

Circulating alloantibodies encounter the grafted endothelium as the first target. Living endothelial cells can rapidly eliminate bound antibodies from the cell surface by “capping”, “shedding” or “internalisation”.

C4d is the degradation product of the activated complement factor C4, a component of the classical complement cascade, which is typically initiated by binding of antibodies to specific target molecules. Detection of C4d is regarded as an indirect sign, a “footprint” of an antibody response against the allograft. The majority of publications describe C4d as an important marker in kidney transplantation but also in heart, liver, and other transplants.

### Assay characteristics

#### Anti C4d (BI-RC4D)

Quantity 250 µl/vial  
Form liquid IgG fraction, purified by Protein G chromatography  
Application paraffin and frozen sections of human tissue

#### Anti C4d, FITC (BI-RC4D-FITC)

Quantity 100 µl/vial  
Form liquid IgG fraction, purified by Protein G chromatography  
Application flow cytometry

### Literature

Complement-mediated microangiopathy in IgA nephropathy and IgA vasculitis with nephritis. *Chua J.S. et al., Mod Pathol, 2019; 32, 1147-1157*

CD45RC Expression of Circulating CD8+ T Cells Predicts Acute Allograft Rejection: A Cohort Study of 128 Kidney Transplant Patients. *Bouatou Y. et al., Am J Transplant. 2019;19:1972-1988*

C4d immunohistochemical stain of formalin-fixed paraffin-embedded tissue as a sensitive method in the diagnosis of bullous pemphigoid. *Kamyab K et al., J Cutan Pathol. 2019;1-6*

Capillary C4d and Kidney Allograft Outcome in Relation to Morphologic Lesions Suggestive of Antibody-Mediated Rejection. *Kikić Z et al., Clin. J. Am. Soc. Nephrol., Aug 2015; 10: 1435-1443.*

Solid phase detection of C4d-fixing HLA antibodies to predict rejection in high immunological risk kidney transplant recipients. *Bartel G et al., Transpl Int, 2013; 26(2): 121-130*

Preformed complement-activating low-level donor-specific antibody predicts early antibody-mediated rejection in renal allografts. *Lawrence C et al., Transplantation, 2013; 95(2): 341-346*

Modified solid-phase alloantibody detection for improved crossmatch prediction. *Wahrmann M et al., Hum Immunol, 2013; 74(1): 32-40*

Prevalence and qualitative properties of circulating anti-human leukocyte antigen alloantibodies after pregnancy: no association with unexplained recurrent miscarriage. *Bartel G et al., Hum Immunol, 2011; 72(2): 187-192*

Significance of peritubular capillary, glomerular, and arteriolar C4d staining patterns in paraffin sections of early kidney transplant biopsies. *Kikić Z et al., Transplantation. 2011 Feb 27;91(4):440-446.*

Association between anti-β2 glycoprotein I antibodies and renal glomerular C4d deposition in lupus nephritis patients with glomerular microthrombosis: a prospective study of 155 cases. *Y. Shen Y et al., Lupus, Sep 2010; 19: 1195-1203.*

C4d-fixing capability of low-level donor-specific HLA antibodies is not predictive for early antibody-mediated rejection. *Hönger G et al., Transplantation, 2010; 89(12): 1471-1475*

Clinical relevance of preformed C4d-fixing and non-C4d-fixing HLA single antigen reactivity in renal allograft recipients. *Wahrmann M et al., Transpl Int, 2009; 22(10): 982-989*

In vitro detection of C4d-fixing HLA alloantibodies: associations with capillary C4d deposition in kidney allografts. *Bartel G et al., Am J Transplant, 2008; 8(1): 41-49*

Pivotal role of complement-fixing HLA alloantibodies in presensitized kidney allograft recipients. *Wahrmann M et al., Am J Transplant, 2006; 6(5 Pt 1): 1033-1041*

Comparison of C4d Immunostaining Methods in Renal Allograft Biopsies. *Troxel ML et al., CJASN, 2006; 1(3): 583-591*

[C4d]FlowPRA screening – a specific assay for selective detection of complement-activating anti-HLA alloantibodies. *Wahrmann M et al., Hum Immunol 2005; 66(5): 526-534*

Capillary deposition of complement split product C4d in renal allografts is associated with basement membrane injury in peritubular and glomerular capillaries: a contribution of humoral immunity to chronic allograft rejection. *Regele H. et al., J. Am. Soc. Nephrol, 2002; 13: 2371-2380*

Capillary C4d deposition in kidney allografts: a specific marker of alloantibody-dependent graft injury. *Böhmig G et al., J Am Soc Nephrol, 2002; 13 (4): 1091-1099*