



**Neuberg**  
DIAGNOSTICS

• India • UAE • South Africa • USA

# *Neu* INSIGHTS



## Renal Biopsy

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# Introduction

Neuberg supratch reference laboratory is proud of being the first CAP and NABL accredited Laboratory to start and have renal native and graft biopsy reporting service with Special stains (PAS, PASM, MT, Congo red stain, Immunofluorescence study (IgG, IgG subclasses-IgG1, IgG2, IgG3, IgG4, IgM, IgA, C3, C1q, Fibrinogen, Kappa, Lambda), & Immunohistochemistry study (C4d, PLA2R, IgA,IgG4, SAA, SV 40, CMV) since 2007. All tests are done in house and Provisional diagnosis of biopsy is given on same working day if received before 12 noon. Containers with Transport media (10% neutral buffer formalin for routine study and Michell media for Immunofluorescence study) & Gluteraldehyde for Electron microscopy are provided from our laboratory with prior request. Histopathology Department has qualified renal and transplant pathologist with work experience of about 22 yrs.

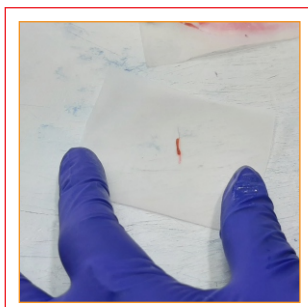
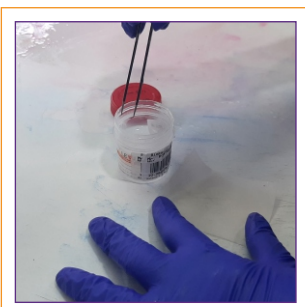
Department has all facilities to do processing & reporting of cadaver kidney donor biopsies also. Biopsy reporting includes image of microphotograph along with details of macroscopic, microscopic findings, diagnosis and references based on which diagnosis is made.

## Clinicopathological Co relation in Renal biopsy.

1. Important to have clinical details and the contact number of the nephrologist with the best time to discuss a case before releasing the final report.
2. While collecting biopsy always keep the first core in Michell media so if difficult to collect 2nd core due to any reasons like a hematoma or altered BP etc, it can be transferred to formalin and used for routine and special stains after doing immunofluorescence study.
3. If childhood onset nephrotic syndrome is suspected with normal renal function clinically, take a sample for molecular test also ( two vials of 3 ml EDTA blood) along with a biopsy sample for further confirmation if the need arises.
4. If FSGS is suspected clinically, biopsy should include corticomedullary junction as in normal development new glomeruli are near corticomedullary junction which if found sclerosed, confirms diagnosis of FSGS.
5. In case the Immunofluorescence study tissue does not have glomeruli and IgA nephropathy is suspected clinically then IHC IgA antibody is available for further confirmation from Formalin-fixed tissue.
6. A duly filled request form along with biopsy samples helps in better diagnosis.
7. Renal biopsy formalin tissue if found inadequate for routine reporting, tissue of Michell media for Immunofluorescence study will be used by transferring in formalin after doing IF study for final diagnosis.
8. For allograft biopsies, the C4d study will be done by Immunohistochemistry study which requires formalin-fixed tissue only so if not possible to collect in Michell media, it is fine.

## Inhouse Work flow of department

### Grossing



### Immuno- fluorescence Staining



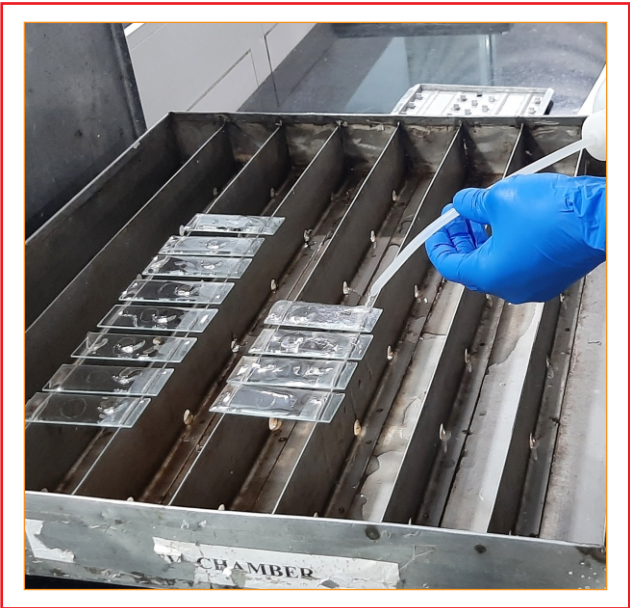


# Immunofluorescence Staining

## Cryostat machine



## IF staining



## IF microscope



## IF cutting





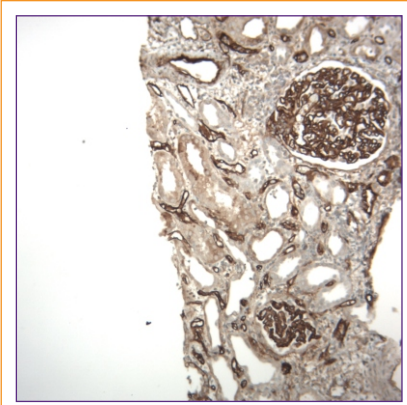
# Immunohistochemistry for renal biopsy

## Leica Bond Max

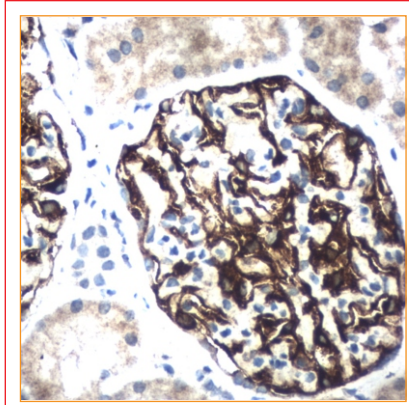


## Stained slides

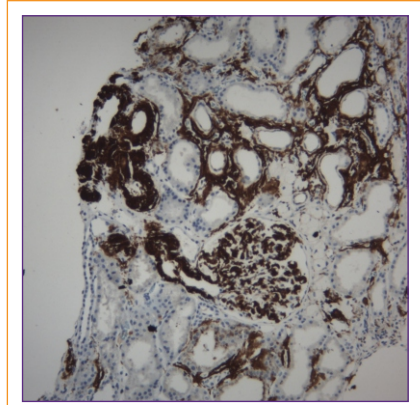
**C4d**



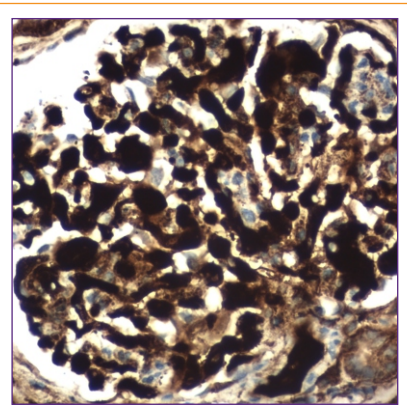
**PLA2**



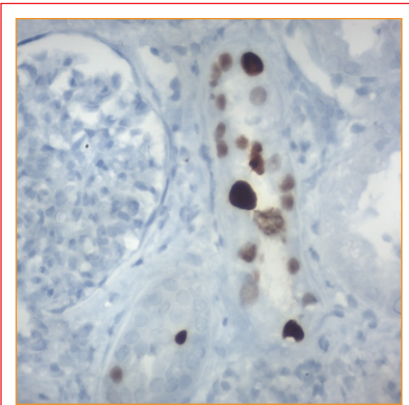
**SAA**



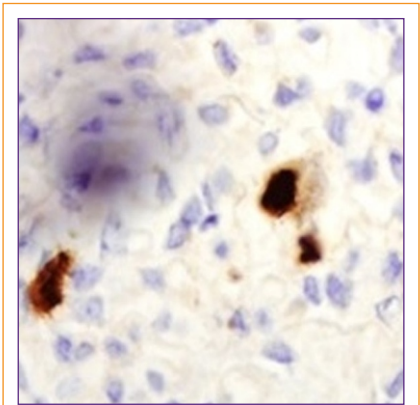
**IgG4**



**SV40**



**CMV**





# Neuberg Supratech Reference Laboratory (NSRL HAP)

## Requisition forms to be filled along with biopsy

### Native Kidney Biopsy

Name: \_\_\_\_\_

Age: \_\_\_ Regd.No. \_\_\_\_\_ OPD/IPD: \_\_\_\_\_ Unit \_\_\_\_\_ Date \_\_\_\_\_

**Clinical Notes and Diagnosis**

Hematuria: \_\_\_\_\_ B.P: \_\_\_\_\_

USG RK \_\_\_\_\_ LK \_\_\_\_\_

S/E: \_\_\_\_\_ Urine Albumin : \_\_\_\_\_

24 Hrs.Protein : \_\_\_\_\_ M/E : \_\_\_\_\_

Sugar : \_\_\_\_\_ mg% S.Creat : \_\_\_\_\_ mg%

Bid. Urea : \_\_\_\_\_ mg% S. Chol : \_\_\_\_\_ mg%

S. Proteins : \_\_\_\_\_ mg% A/G : \_\_\_\_\_

HB : \_\_\_\_\_ gm% T.C : \_\_\_\_\_ /Cmm

Platelet Count : \_\_\_\_\_ /Cmm Other : \_\_\_\_\_

Clinical Impression : \_\_\_\_\_

Material Sent : \_\_\_\_\_

Gross Examination : \_\_\_\_\_

Specimen No : \_\_\_\_\_ Signature \_\_\_\_\_

### Renal Allograft Biopsy

Patients Name: \_\_\_\_\_ Age/Sex: \_\_\_\_\_ Regd.No. \_\_\_\_\_

Referred by : \_\_\_\_\_ OPD/Ward : \_\_\_\_\_

Protocol \_\_\_\_\_

Clinical Notes : \_\_\_\_\_

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Date of Transplantation: \_\_\_\_\_ Donor Relation: \_\_\_\_\_ Donor Age: \_\_\_\_\_

HLA match: \_\_\_\_\_ DR. \_\_\_\_\_ Basic Disease : \_\_\_\_\_

Immunosuppressions/Drug Level : \_\_\_\_\_

Previous Biopsy Report and Date : \_\_\_\_\_

USG / Doppler Graft: \_\_\_\_\_ RI : \_\_\_\_\_

B.P : \_\_\_\_\_ mm/Hg Weight : \_\_\_\_\_ 24 Hrs.Urinary Protein: \_\_\_\_\_ gram

Urine Albumin : \_\_\_\_\_ M/E: \_\_\_\_\_ S.Cr. \_\_\_\_\_ mg/dL (Baseline Cr. \_\_\_\_\_)

Hb.: \_\_\_\_\_ gm/dL Total WBC count : \_\_\_\_\_ /cmm Platelet count: \_\_\_\_\_ /cmm

S.Proteins: \_\_\_\_\_ gm/dL, A/G: \_\_\_\_\_ / \_\_\_\_\_ gm/dL, Blood sugar : \_\_\_\_\_

Others : \_\_\_\_\_

Clinical Impression: \_\_\_\_\_

Drug	Dose	Level	Drug	Dose	Level	Warm ischemia Time	
Prednisone			Everolimus			Cold ischemia Time	
Tacrolimus			MMF			Anastomosis Time	
CSA			Azathioprin			Type Of surgery	
Sirolimus							

Investigation: HPE  IF  EM  IHC

Gross Examination : \_\_\_\_\_

Test	Test Components	Method	Specimen/Transport	TAT/ Batch	Clinical Applications
Special Stains	PAS stain PASM stain MT stain Congo-red stain	Manual Section cut on microtome at various thickness as required for special stain	Formalin fixed tissue/ paraffin blocks of tissue	24hrs	For definite diagnosis based on clinical suspicion on routine H & E stain
Immuno-fluorescence study	IgG,IgA,IgM,C3,C1q, kappa, Lambda, Fibrinogen, IgG subclasses IgG, IgG <sub>2</sub> , IgG <sub>3</sub> , IgG <sub>4</sub>	Sections cut on cryostat	Phosphate buffer saline or Michell media Trnasport with coolant	24hrs	For further typing of glomerular disease diagnosed on routine H & E stain
Immuno-histochemistry study	IgA, SAA IgG4 Kappa Lambda C4d	Sections cut on microtome at various thickness	Formalin fixed tissue/ paraffin blocks of tissue	24hrs to 48 hrs	For definitive diagnosis of IgA nephropathy if IF cannot be done with IgA, for IgG4 disease and for differentiating primary from secondary amyloidosis
Electron Microscopy	Outsourced	Transmission electron microscopy	Gluteraldehyde with coolant	10-12 days	For detection of diseases like thin basement membrane disease, Fibrillary disease, DDD etc

## Our services

T-2012 Renal biopsy with special stains (HE, PAS, PASM, MT, Congo red stain)

T-2384 Renal biopsy with HE, PAS, PASM, MT, Congo red stain and IF study

T-2005 Renal biopsy with HE, PAS, PASM, MT, Congo red stain and IF study and EM study

T-2005 + T4594 with Renal biopsy with HE, PAS, PASM, MT, Congo red stain and IF study and EM study and Molecular tests for Childhood onset Steroid resistant nephrotic syndrome or Hereditary renal disease panel by NGS (Orion WES)

T-2154 Renal graft biopsy with C4d study and Immunofluorescence study-

T-2156 Serum Amyloid associated (SAA for amyloidosis) by Immunohistochemistry study.-

T-2008 AntiPLA2R (for membranous glomerulonephritis) by Immunohistochemistry study-

T-2156 IgG4 (for IgG4 related disease) by Immunohistochemistry study

T-4595 Molecular test for complements by NGS for atypical HUS- (Orion Focus)

T 2010 Renal biopsy for immunofluorescence study(IgG subtypes)



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