PID Facilities in India

National Institute of Immunohematology (ICMR)

13th Floor, NMS Building KEM Hospital Campus, Parel, Mumbai. Website: www.niih.org.in

Resource person:

1. **Dr. Manisha Madkaikar**

   Director-in-charge, Scientist E

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Diagnostic facilities available:

Primary Immunodeficiency Screening:

- Serum Immunoglobulin estimation IgG, A, M, E - Nephelometry-based assays
- Lymphocyte subset analysis: T, B and NK cells enumeration - Flowcytometry
- Activation markers : CD25, HLA-DR - Flowcytometry
- Nitroblue tetrazolium blood test - Microscopy

Severe Combined Immunodeficiency (SCID) workup:

- Lymphocyte subset analysis: T, B and NK - Flowcytometry
  - $T^-B^+ NK^-$: CD132 (common γ chain for X- linked SCID), pStat5 - Flowcytometry
  - $T^-B^+ NK^{+:}$ CD127 (*IL7Rα*) - Flowcytometry and Molecular study
  - $T^-B^- NK^-$: ADA - Spectrophotometer and Molecular study
  - $T^-B^- NK^+$: *RAG1/ RAG2* gene - Molecular study
- MHC class II deficiency(CD4 lymphopenia) : HLA DR expression - Flowcytometry
- Very low CD8: CD8 α Expression - Flowcytometry
- CD8 lymphopenia: *ZAP70* gene - Molecular study

Chronic Granulomatous Disease (CGD) workup:

- Nitroblue tetrazolium blood test - Microscopy
- Dihydrorhodamine assay (DHR) - Flowcytometry
- Autosomal recessive:
  - p47phox, p67 phox(intracellular antigens) - Flowcytometry
  - CYBB, gene NCF1 gene, NCF2 gene - Molecular study
- X –linked
  - 7 D5 expression (gp91phox/p22phox) - Flowcytometry
  - CYBB gene - Molecular study

Hemophagocytic Lymphohistiocytosis (HLH) workup:

- Perforin and Granzyme B on NK cells and Tc cells - Flowcytometry
- NK cell cytotoxicity and Granule release assay- Flowcytometry
- Perforin gene (FHL2), MUNC 13-4 gene (FHL3), STX 11 gene (FHL4) - Molecular study
- IL6, IL10, Ferritin, sCD25, TNFα - ELISA

Leukocyte Adhesion Deficiency-I (LAD- I):

- CD18, CD11a, CD11b, CD11c- Flowcytometry
- ITBG2 (β2 integrin gene) - Molecular study

Autoimmune Lymphoproliferative Syndrome (ALPS) work up

- Lymphocyte subset analysis: T, B and NK- Flowcytometry
- Double negative T cells (CD3, TCRαβ, CD4, and CD8) - Flowcytometry
- Apoptosis assay- Flowcytometry
- FAS ligand and Vit B12 -ELISA
- FAS gene -Molecular study

BENTA (B-cell expansion with NF-jB and T-cell anergy) Workup

- Lymphocyte subset analysis: T, B and NK- Flowcytometry
- B cell immunophenotyping- Flowcytometry
  - Naïve and Memory B cells
  - Switched and Unswitched B cells
  - Switched and Unswitched memory B cells
  - Transitional cells
- Serum Immunoglobulin estimation IgG, A, M, E- Nephelometry-based assays
- CARD11 gene - Molecular study

Mendelian Susceptibility to Mycobacterial Diseases (MSMD) workup:

- Lymphocyte subset analysis: T, B and NK- Flowcytometry
- Nitroblue tetrazolium blood test -Microscopy
- IFNγR1, IFNγR2 and IL-12Rβ1 expression- Flowcytometry
- pSTAT1, pSTAT4- Flowcytometry
- IFNγ and IL-12P40 - ELISA
- IFNγR1 gene- Molecular study

Hyper IgM syndrome

- Autosomal recessive:
  - CD40 expression- Flowcytometry
  - CD40 gene – Molecular study
  - Serum Immunoglobulin estimation IgG, A, M, E-Nephelometry-based assays
- X –linked
  - CD40L expression on activated T cells – Flowcytometry
  - CD40L gene – Molecular study
  - Serum Immunoglobulin estimation IgG, A, M, E-Nephelometry-based assays

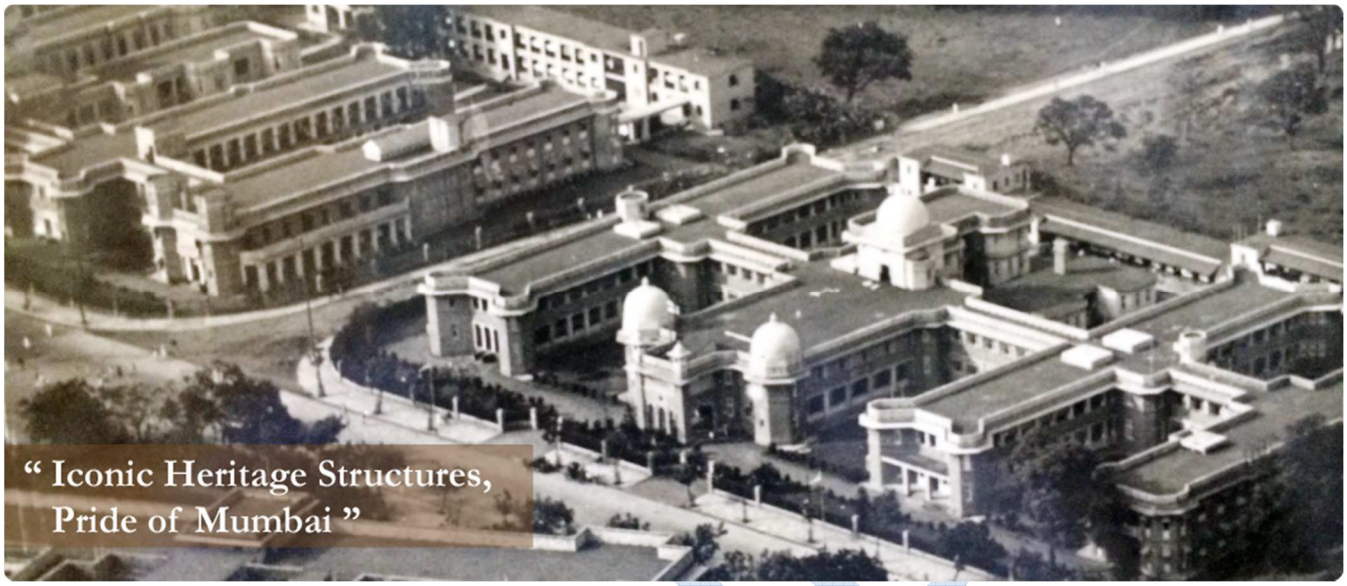
X-linked agammaglobulinemia (XLA) workup

- Lymphocyte subset analysis: T, B and NK- Flowcytometry
- CD20 expression- Flowcytometry
- Btk expression on monocytes- Flowcytometry
- Serum Immunoglobulin estimation IgG, A, M, E -Nephelometry-based assays

PID Facilities in India

Bai Jerbai Wadia Hospital for Children, Mumbai

Website: www.wadiahospitals.org



Resource person:

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Bai Jerbai Wadia Hospital for Children, Mumbai acts as a tertiary referral centre in and around Maharashtra. Dr. Zinet Currimbhoy founded the Division of Immunology at B.J. Wadia Hospital for Children. She evolved a collaborative approach with NIIH that established the investigation for Primary Immunodeficiency and Division of Immunology, B.J. Wadia Hospital, which run the clinical services.

The Division of Immunology has its out patients services on every Thursday in OPD no. 6 since 4th OCT 2007 at Bai Jerbai Wadia Hospital for Children, Parel, Mumbai. It also caters for ambulatory and Indoor care of Children with Primary Immunodeficiency Disorders (PID).

The Division of Immunology has a post of 'Medical Research Officer' called as "Currimbhoy Scholar" having remuneration of 12000/- per month.

The Division of Immunology has Mr. Prasad Taur appointed as 'Junior Scientific Officer'. The work is carried out at our Division of Immunology and at National Institute of Immunohaematology (NIIH), ICMR as per liaison established with them.

Facilities:

Immunology OPD:
Thursday 10:00 am to 12:00 am in OPD no.6

Immunology Case Discussion:
Monday 11:30 – 1:00 pm

New Immunology referrals:
Accepted between 9am to 4 pm between Monday to Saturday

Indoor Service:
Indoor patients from Medical, Surgical units and Intensive Care areas were being catered to by the Division of Immunology on a daily basis.

The Division of Immunology has collaboration in various ongoing projects on different cards of Primary Immunodeficiency with National Institute of Immunohaematology (NIIH), Enterovirus Research Centre (EVRC), ICMR.