You May Have a Patient Like This…

Susceptible to multiple upper respiratory and skin infections

and/or

Multiple recurrent HPV related warts that are resistant to treatment

It Could Be WHIM Syndrome

What is WHIM?

WHIM is a rare genetic disease caused by a variant in the CXCR4 gene resulting in a spectrum of symptoms and laboratory findings.

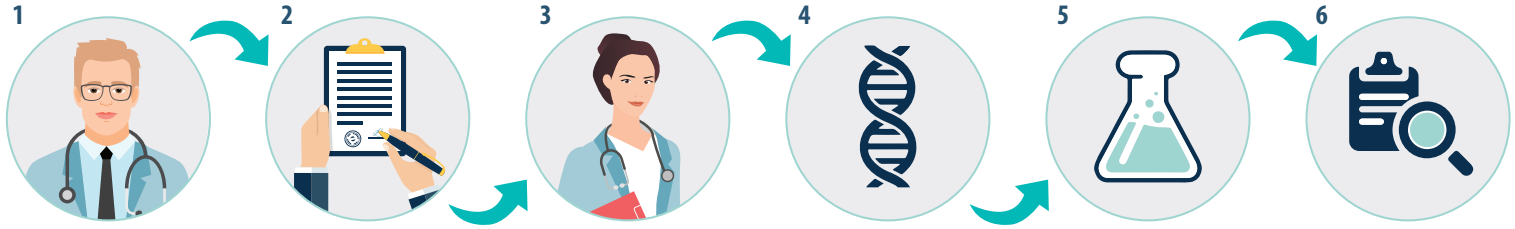
WHIM is an acronym for: Warts, Hypogammaglobulinemia, Infections, and Myelokathexis.

Not every person with WHIM has all of these signs and symptoms at the same time because of the variability of the disease. There can also be variability in the onset and timing of each symptom.

We Can Help You Confirm or Eliminate WHIM in Your Diagnostic Process Using Genetic Testing

1. Evaluate patient charts for individuals that meet the study enrollment criteria.
2. Enroll qualified patients in a no-cost genetic screening study.

WHIM Genetic Screening Study



Dr. Jolan Walter, University of South Florida at Johns Hopkins All Children's Hospital, is conducting the first WHIM genetic screening study. Jeffrey Modell Foundation and X4 Pharmaceuticals are sponsoring the genetic screening study to better understand WHIM and its prevalence among patients with severe chronic neutropenia, lymphopenia, and/or monocytopenia with or without hypogammaglobulinemia, and/or warts.

This study may support the clinical development of an investigational therapy for WHIM that requires accurate data about both the genotype and phenotype of the syndrome.

WHIM Genetic Screening Study Protocol

Patient must meet ***all*** of the following **Inclusion Criteria:**

1. Associated symptoms or WHIM-associated signs, defined as follows:
   - High frequency of bacterial Infections (ENT and/or airways)
   - Recurrent subcutaneous abscesses
   - Severe or long-lasting warts
2. Leukopenia with WBC ≤ 2,000/μL (age appropriate)
3. Has signed the approved consent form; patients under 18 years of age must also have a signed parental/legal guardian consent
4. Be willing and able to comply with this protocol

Exclusion Criteria:

1. On medications known to induce neutropenia (listed below)
2. Any prior history of chemotherapy
3. Medullary aplasia, irrespective of etiology (idiopathic, Fanconi syndrome, etc.)
4. Severe anemia (Hgb < 7 g/dL) or thrombocytopenia (<10,000 count)
5. Progressive malignant pathology or medical history of malignancy
6. Any history of HIV diagnosis
7. Initial myelodysplasia (G6P mutation)

Medications Known to Cause Neutropenia

Non-chemotherapy	Chemotherapy
Clozapine, Dapsone, Hydroxychloroquine, infliximab, Lamotrigine, Methimazole, Oxacillin, Penicillin G, Procainamide, Propylthiouracil, Quinidine/Quinine, Rituximab, Sulfasalazine, Trimethoprim-sulfamethoxazole, and Vancomycin	Alkylating agents, Anthracyclines, Antimetabolites, Camptothecins, Epipodophyllotoxins, Hydroxyurea, Mitomycin C, Taxanes, and Vinblastine

Contact the Principal Investigator Dr. Jolan Walter for More Information

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IRB Study Number: Pro00035468
Collaborative study of immune mechanisms underlying allergic or immunologic disease or immune dysregulation