



Immunoscience Lab, Inc.
Rahim Karjoo, M.D. Medical Director

Patient Name:	PARK-ALVAREZ, RUBEN
Patient I.D.:	DURB8862002

JAQUELYN MCCANDLESS, M.D. P.O. BOX 1868 HUNTER, HI. 96727			
Blood Drawn	Processed	Reported	ISL No.
07/18/06	07/20/06	08/03/06	200714

REFERRING PHYSICIAN

TEST RESULTS NORMAL ABNORMAL REFERENCE RANGE UNITS

*** STREPTOCOCCAL ANTIG. IgG ***
IgG STREPTOCOCCAL ANTIGEN 48 0 - 100 ELISA

Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS) have been described in children Obsessive-Compulsive Disorder (OCD), Anorexia Nervosa and/or TIC disorders subsequent to streptococcal infections. The acronym PANDAS has been given to a subgroup of pediatric patients who meet five inclusionary criteria:

- 1-Presence of OCD and/or TIC disorder
- 2-Pre-pubertal symptoms onset
- 3-Sudden onset or episodic course of symptoms
- 4-Temporal association between streptococcal infections and neuropsychiatric symptoms exacerbation
- 5-Associated neurological abnormalities including anti-neuro-nal antibodies and neuroimmune dysfunction

The unique clinical characteristics of PANDAS subgroup is the presence of volumetric changes in the basal ganglia, increased titers of antibodies against the streptococcal (DNase+MABase+Streptolysin O+Streptokinase+Hyaluronidase), Streptococcal antigens (M5+M12+M19), and their cross-reactive epitope on B-cells (D8/17) and nerve cells, which have been described in a majority of patients. For an estimated 25-30% of children, the episode is thought to be triggered or exacerbated by the body's immune cells, while attacking the streptococcus. Due to similarity between streptococcus and human tissue, immune cells also begin to attack its own B-cells or the basal ganglia. This groundbreaking discovery may change the course of treatment for a subset of children with OCD. Since elevate d serum titers of antibodies against streptococcal enzymes, antigens, cross-reactive epitopes on B cell and nerve cells, it may require antibiotic and immunomodulatory treatment by the examining physician.

1-Leonard HL, Swede SE, Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infection (PANDAS) Int. J. Neuropsychopharmacol 4:191, 2001
2-Murphy TK, et al, B Lymphocyte Antigen D8/17: A Peripheral Marker for Childhood Onset Obsessive Compulsive Disorder and Tourette's Syndrome. Am J. Psychiatry 154:402, 1997.
3-Mueller M, et al, Increased titers of Antibodies Against Streptococcal M12 and M19 Proteins in Patients with Tourret

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