Geneticheck - Genetic Report

Gene

PYCR2

Associated Diseases

Leukodystrophy, Hypomyelinating, 10
Autosomal Recessive Primary Microcephaly
Pycr2-related Microcephaly-progressive Leukoencephalopathy

Phenotype

Feeding difficulties
Impaired ability to eat related to problems gathering food and getting ready to suck, chew, or swallow it.

Severe demyelination of the white matter
A severe loss of myelin from nerve fibers in the central nervous system.

Seizure
A seizure is an intermittent abnormality of nervous system physiology characterised by a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain.

CNS hypomyelination
Reduced amount of myelin in the central nervous system resulting from defective myelinogenesis.

Flexion contracture
A flexion contracture is a bent (flexed) joint that cannot be straightened actively or passively. It is thus a chronic loss of joint motion due to structural changes in muscle, tendons, ligaments, or skin that prevents normal movement of joints.

Aggressive behavior
Aggressive behavior can denote verbal aggression, physical aggression against objects, physical aggression against people, and may also include aggression towards oneself.

Ventriculomegaly
An increase in size of the ventricular system of the brain.

Narrow forehead
Width of the forehead or distance between the frontotemporales is more than two standard deviations below the mean (objective); or apparently narrow intertemporal region (subjective).

Global brain atrophy
Unlocalized atrophy of the brain with decreased total brain matter volume and increased ventricular size.

Vesicoureteral reflux
Abnormal (retrograde) movement of urine from the bladder into ureters or kidneys related to inadequacy of the valvular mechanism at the ureterovesicular junction or other causes.

Thin vermilion border

Height of the vermilion of the medial part of the lip more than 2 SD below the mean, or apparently reduced height of the vermilion of the lip in the frontal view. The vermilion is the red part of the lips (and confusingly, the vermilion itself is also often referred to as being equivalent the lips).

Hearing impairment
A decreased magnitude of the sensory perception of sound.

Microcephaly
Head circumference below 2 standard deviations below the mean for age and gender.

Autosomal recessive inheritance
A mode of inheritance that is observed for traits related to a gene encoded on one of the autosomes (i.e., the human chromosomes 1-22) in which a trait manifests in individuals with two pathogenic alleles, either homozygotes (two copies of the same mutant allele) or compound heterozygotes (whereby each copy of a gene has a distinct mutant allele).

Failure to thrive
Failure to thrive (FTT) refers to a child whose physical growth is substantially below the norm.

High palate
Height of the palate more than 2 SD above the mean (objective) or palatal height at the level of the first permanent molar more than twice the height of the teeth (subjective).

Sloping forehead
Inclination of the anterior surface of the forehead from the vertical more than two standard deviations above the mean (objective); or apparently excessive posterior sloping of the forehead in a lateral view.

Babinski sign
Upturning of the big toe (and sometimes fanning of the other toes) in response to stimulation of the sole of the foot. If the Babinski sign is present it can indicate damage to the corticospinal tract.

Cerebral atrophy
Atrophy (wasting, decrease in size of cells or tissue) affecting the cerebrum.

Increased laxity of ankles

Triangular face
Facial contour, as viewed from the front, triangular in shape, with breadth at the temples and tapering to a narrow chin.

Hypoplasia of the frontal lobes
Underdevelopment of the frontal lobe of the cerebrum.

Abnormality of the skeletal system
An abnormality of the skeletal system.

Short stature
A height below that which is expected according to age and gender norms. Although there is no universally

accepted definition of short stature, many refer to "short stature" as height more than 2 standard deviations below the mean for age and gender (or below the 3rd percentile for age and gender dependent norms).

Poor speech

Downslanted palpebral fissures
The palpebral fissure inclination is more than two standard deviations below the mean.

Anteverted nares
Anteriorly-facing nostrils viewed with the head in the Frankfurt horizontal and the eyes of the observer level with the eyes of the subject. This gives the appearance of an upturned nose (upturned nasal tip).

Short nose
Distance from nasion to subnasale more than two standard deviations below the mean, or alternatively, an apparently decreased length from the nasal root to the nasal tip.

Ataxia
Cerebellar ataxia refers to ataxia due to dysfunction of the cerebellum. This causes a variety of elementary neurological deficits including asynergy (lack of coordination between muscles, limbs and joints), dysmetria (lack of ability to judge distances that can lead to under- or overshoot in grasping movements), and dysdiadochokinesia (inability to perform rapid movements requiring antagonizing muscle groups to be switched on and off repeatedly).

Broad eyebrow
Regional increase in the width (height) of the eyebrow.

Hyperintensity of cerebral white matter on MRI
A brighter than expected signal on magnetic resonance imaging emanating from the cerebral white matter.

Unilateral renal agenesis
A unilateral form of agenesis of the kidney.

Nystagmus
Rhythmic, involuntary oscillations of one or both eyes related to abnormality in fixation, conjugate gaze, or vestibular mechanisms.

Hip dislocation
Displacement of the femur from its normal location in the hip joint.

Bulbous nose
Increased volume and globular shape of the anteroinferior aspect of the nose.

Progressive microcephaly
Progressive microcephaly is diagnosed when the head circumference falls progressively behind age- and gender-dependent norms.

Hypoplasia of the maxilla
Abnormally small dimension of the Maxilla. Usually creating a malocclusion or malalignment between the

upper and lower teeth or resulting in a deficient amount of projection of the base of the nose and lower midface region.

Thick vermilion border
Increased width of the skin of vermilion border region of upper lip.

Irritability
A proneness to anger, i.e., a condition of being easily bothered or annoyed.

Protruding ear
Angle formed by the plane of the ear and the mastoid bone greater than the 97th centile for age (objective); or, outer edge of the helix more than 2 cm from the mastoid at the point of maximum distance (objective).

Hypotonia
Hypotonia is an abnormally low muscle tone (the amount of tension or resistance to movement in a muscle). Even when relaxed, muscles have a continuous and passive partial contraction which provides some resistance to passive stretching. Hypotonia thus manifests as diminished resistance to passive stretching. Hypotonia is not the same as muscle weakness, although the two conditions can co-exist.

Limb hypertonia

Thoracic kyphoscoliosis

Intellectual disability, severe
Severe mental retardation is defined as an intelligence quotient (IQ) in the range of 20-34.

Thin upper lip vermilion
Height of the vermilion of the upper lip in the midline more than 2 SD below the mean. Alternatively, an apparently reduced height of the vermilion of the upper lip in the frontal view (subjective).

Vomiting
Forceful ejection of the contents of the stomach through the mouth by means of a series of involuntary spasmic contractions.

Low-set ears
Upper insertion of the ear to the scalp below an imaginary horizontal line drawn between the inner canthi of the eye and extending posteriorly to the ear.

Arachnodactyly
Abnormally long and slender fingers ("spider fingers").

Cerebral cortical atrophy
Atrophy of the cortex of the cerebrum.

Inability to walk
Incapability to ambulate.

Pachygyria
Pachygyria is a malformation of cortical development with abnormally wide gyri with sulci 1,5-3 cm apart and abnormally thick cortex measuring more than 5 mm (radiological definition). See also neuropathological definitions for 2-, 3-, and 4-layered lissencephaly.

Hypoplasia of the corpus callosum
Underdevelopment of the corpus callosum.

Severe global developmental delay
A severe delay in the achievement of motor or mental milestones in the domains of development of a child.

Difficulty walking
Reduced ability to walk (ambulate).

Cerebral visual impairment
A form of loss of vision caused by damage to the visual cortex rather than a defect in the eye.

Agenesis of corpus callosum
Absence of the corpus callosum as a result of the failure of the corpus callosum to develop, which can be the result of a failure in any one of the multiple steps of callosal development including cellular proliferation and migration, axonal growth or glial patterning at the midline.

Global developmental delay
A delay in the achievement of motor or mental milestones in the domains of development of a child, including motor skills, speech and language, cognitive skills, and social and emotional skills. This term should only be used to describe children younger than five years of age.

Hyperkinetic movements
Motor hyperactivity with excessive movement of muscles of the body as a whole.

Growth delay
A deficiency or slowing down of growth pre- and postnatally.

Spasticity
A motor disorder characterized by a velocity-dependent increase in tonic stretch reflexes with increased muscle tone, exaggerated (hyperexcitable) tendon reflexes.

Smooth philtrum
Flat skin surface, with no ridge formation in the central region of the upper lip between the nasal base and upper vermilion border.

Broad thumb
Increased thumb width without increased dorso-ventral dimension.

Gray matter heterotopia
Heterotopia or neuronal heterotopia are macroscopic clusters of misplaced neurons (gray matter), most often situated along the ventricular walls or within the subcortical white matter.

Abnormal facial shape

An abnormal morphology (form) of the face or its components.

Leukodystrophy
Leukodystrophy refers to deterioration of white matter of the brain resulting from degeneration of myelin sheaths in the CNS. Their basic defect is directly related to the synthesis and maintenance of myelin membranes. Symmetric white matter involvement at MRI is a typical finding in patients with leukodystrophies.

Bilateral tonic-clonic seizure
A bilateral tonic-clonic seizure is a seizure defined by a tonic (bilateral increased tone, lasting seconds to minutes) and then a clonic (bilateral sustained rhythmic jerking) phase.

Hypertelorism
Interpupillary distance more than 2 SD above the mean (alternatively, the appearance of an increased interpupillary distance or widely spaced eyes).

Esotropia
A form of strabismus with one or both eyes turned inward ('crossed') to a relatively severe degree, usually defined as 10 diopters or more.

Upslanted palpebral fissure
The palpebral fissure inclination is more than two standard deviations above the mean for age (objective); or, the inclination of the palpebral fissure is greater than typical for age.

Hypoplasia of the brainstem
Underdevelopment of the brainstem.

Hyperextensibility at wrists
The ability of the wrist joints to move beyond their normal range of motion.

Developmental regression
Loss of developmental skills, as manifested by loss of developmental milestones.

Muscular hypotonia of the trunk
Muscular hypotonia (abnormally low muscle tone) affecting the musculature of the trunk.

Long philtrum
Distance between nasal base and midline upper lip vermilion border more than 2 SD above the mean. Alternatively, an apparently increased distance between nasal base and midline upper lip vermilion border.

Macrotia
Median longitudinal ear length greater than two standard deviations above the mean and median ear width greater than two standard deviations above the mean (objective); or, apparent increase in length and width of the pinna (subjective).

Skeletal muscle atrophy
The presence of skeletal muscular atrophy (which is also known as amyotrophy).

Focal myoclonic seizure

A type of focal motor seizure characterized by sudden, brief (<100 ms) involuntary single or multiple contraction(s) of muscles(s) or muscle groups of variable topography (axial, proximal limb, distal). Myoclonus is less regularly repetitive and less sustained than is clonus.

Broad hallux
Visible increase in width of the hallux without an increase in the dorso-ventral dimension.

Joint hypermobility
The ability of a joint to move beyond its normal range of motion.

Overfolded helix
A condition in which the helix is folded over to a greater degree than normal. That is, excessive curling of the helix edge, whereby the free edge is parallel to the plane of the ear.

Pectus carinatum
A deformity of the chest caused by overgrowth of the ribs and characterized by protrusion of the sternum.

Malar flattening
Underdevelopment of the malar prominence of the jugal bone (zygomatic bone in mammals), appreciated in profile, frontal view, and/or by palpation.

Absent speech
Complete lack of development of speech and language abilities.

Abnormal cortical bone morphology
An abnormality of compact bone (also known as cortical bone), which forms the dense surface of bones.

Intellectual disability
Subnormal intellectual functioning which originates during the developmental period. Intellectual disability, previously referred to as mental retardation, has been defined as an IQ score below 70.

Hyperreflexia
Hyperreflexia is the presence of hyperactive stretch reflexes of the muscles.