



Kennedy Disease (X-Linked Spinal And Bulbar Muscular Atrophy)

Kennedy Disease (X-linked spinal and bulbar muscular atrophy) is an adult-onset form of motor neuron disease that may also be associated with signs of androgen receptor insensitivity. The disease predominantly affects distal muscles of extremities, occasionally includes bulbar muscles, but does not show signs of upper motor neuron disease. Kennedy's Disease is X-linked and has been associated with expansion of a CAG nucleotide repeat sequence in the first exon of the androgen receptor gene. The severity of the disease and the earlier onset in successive generations are associated with the size of the expanded allele. In general, the earlier the age of onset is, the larger the repeat. The androgen receptor is a member of Erb A superfamily of chromatin binding proteins. This family includes the steroid receptor family. The AR receptor binds the male sex steroids and thus is involved in sexual differentiation

Male patients affected with X-linked Kennedy Disease demonstrate a single allele with 36-80 CAG repeats in exon 1 of the androgen receptor gene. Identification of one normal allele in a male and two normal alleles in a female with the CAG repeat from 10 to 30 rules out the diagnosis of Kennedy's Disease. Carrier females exhibit one normal and one expanded allele; these patients generally do not exhibit signs of disease but can in certain circumstances such as skewed inactivation of X chromosomes.

The test is performed by PCR amplification of DNA from a patient's white blood cells targeting a region in the first exon of the androgen receptor gene which contains the CAG repeat sequence. The resulting products from each X chromosome is analyzed, and the size of the CAG repeat region calculated based on their size. A customized report is generated which takes into account family history (if provided) and the inheritance pattern of this disorder. The use of a healthcare professional experienced in genetic counseling for trinucleotide repeat disorders is recommended to obtain informed consent for Kennedy's disease testing as well as for disclosure of test results.

Turnaround Time: 4-5 weeks.

Specimen Requirements: See Oncology/Genetics Specimen Handling Protocol or Molecular Diagnostics Genetics Requisition Form.

Informed Consent: It is the responsibility of the referring health care professional to obtain proper informed consent from the patient for genetic testing. Test results are released only to the primary referring physician and/or genetic counselor. The laboratory report contains information that may be useful for genetic counseling of the patient and/or family members, although adjunct use of an experienced genetic counselor or medical geneticist may be beneficial for this genetic disorder.