

## AURKC gene

aurora kinase C

### Normal Function

The *AURKC* gene provides instructions for making a protein called aurora kinase C. This protein regulates certain events during cell division. Cell division occurs when a cell replicates and splits its contents, separating into two new cells. Aurora kinase C helps the two dividing cells separate from each other and ensures that these cells each contain a complete set of chromosomes. Aurora kinase C is most abundant in male testes, which are the male reproductive organs in which sperm are produced and stored. In the testes, this protein regulates the division of sperm cells, ensuring that every new sperm cell divides properly and contains one copy of each chromosome.

### Health Conditions Related to Genetic Changes

#### Macrozoospermia

At least four mutations in the *AURKC* gene have been found to cause macrozoospermia. This condition causes males to have abnormal sperm, which leads to an inability to father biological children (infertility). *AURKC* gene mutations that cause macrozoospermia lead to the production of a nonfunctional protein or a protein that is quickly broken down. One mutation that is a frequent cause of this condition in men of North African descent deletes a single DNA building block (nucleotide) from the *AURKC* gene (written 144delC). The protein produced from the altered gene is abnormally short and nonfunctional.

A lack of aurora kinase C blocks cell division in sperm cells. As a result, sperm cells have extra chromosomes, usually four copies of each instead of the usual one. This increase in chromosome number enlarges the sperm cell head and leads to the presence of multiple tails (flagella). Because of the additional genetic material, if one of these abnormal sperm cells combines with an egg cell, the embryo will not develop or the pregnancy will result in miscarriage.

### Other Names for This Gene

- AIK3
- AIK3 protein kinase
- ARK-3

- ARK3
- AurC
- aurora-related kinase 3
- aurora/IPL1-like kinase 3
- aurora/IPL1-related kinase 3
- serine-threonine-protein kinase 13
- serine/threonine-protein kinase aurora-C
- STK13

## Additional Information & Resources

### Tests Listed in the Genetic Testing Registry

- Tests of AURKC ([https://www.ncbi.nlm.nih.gov/gtr/all/tests/?term=6795\[geneid\]](https://www.ncbi.nlm.nih.gov/gtr/all/tests/?term=6795[geneid]))

### Scientific Articles on PubMed

- PubMed (<https://pubmed.ncbi.nlm.nih.gov/?term=%28%28AURKC%5BTIAB%5D%29+OR+%28aurora+kinase+C%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+3600+days%22%5Bdp%5D%29%29%29>)

### Catalog of Genes and Diseases from OMIM

- AURORA KINASE C; AURKC (<https://omim.org/entry/603495>)

### Gene and Variant Databases

- NCBI Gene (<https://www.ncbi.nlm.nih.gov/gene/6795>)
- ClinVar ([https://www.ncbi.nlm.nih.gov/clinvar?term=AURKC\[gene\]](https://www.ncbi.nlm.nih.gov/clinvar?term=AURKC[gene]))

## References

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## Genomic Location

The *AURKC* gene is found on chromosome 19 (<https://medlineplus.gov/genetics/chromosome/19/>).

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