NATIONAL KIDNEY FOUNDATION®

APOL1 Mediated Kidney Disease (AMKD)

About AMKD

AMKD is a type of kidney disease caused by **variants** (changes) in the *APOL1* (apolipoprotein L1) **gene**.

Variants are tiny changes in genes or DNA. Some variants have been linked to certain diseases (known as risk variants).

A **gene** is a small piece of DNA, or a basic unit of heredity. DNA (deoxyribonucleic acid) carries genetic information, or instructions, for all living things.

The *APOL1* gene

We all inherit two copies of the *APOL1* gene, one from our mother and one from our father.

The gene codes (or contains instructions) for making a protein involved in the **immune system**.

Normally, the body fights off anything that isn't part of itself, like germs and viruses. That system of protection is called the **immune system**.

APOL1 and kidney disease

Studies have shown a higher risk for kidney disease with two ***APOL1* risk variants**, known as G1 and G2.

***APOL1* risk variant**: Variants linked with disease are known as risk variants, such as *APOL1* risk variants]

It is believed that *APOL1* variants arose as protection from certain parasites in Western and Central Africa thousands of years ago, but some variants can also raise **kidney disease risk**.

Kidney disease risk: People more likely to have an *APOL1* risk variant can include people who identify as Black/African American, Afro-Caribbean, and/or Hispanic/Latino. Not everyone with two copies of an *APOL1* risk variant will get kidney disease. Also, people without risk variants can still get kidney disease.

Kidney disease can be the result of **multiple factors**.

Multiple factors can include many things. Diabetes, high blood pressure and a family history of kidney disease or kidney failure are common risk factors. Kidney disease can also result from multiple environmental and social factors.

Test for kidney disease

Estimated glomerular filtration rate (eGFR): A blood test that checks how well the kidneys are functioning.

Urinary albumin-to-creatinine ratio (UACR): A urine test that checks for high protein (albumin) in the urine, which is a sign of kidney damage.

Other tests (kidney biopsy, ultrasound, or CT scan) may be used if more information is needed for a diagnosis.

Genetic testing

Genetic testing is the only way to find out if a person has APOL1 variants (G1, G2) with higher risk for AMKD.

APOL1 gene testing can be ordered by a physician or **genetic counselor**.

The test uses a sample of blood or saliva to look for gene variants (changes in the gene).

Samples are sent to a lab which determines whether they contain an APOL1 risk variant that causes kidney disease (G1, G2).

A **genetic counselor** is a healthcare professional with special training in genetics and genetic diseases. They can help answer questions about the test and its results.

Reasons for genetic testing

The decision to have a genetic a test is made in consultation with a healthcare professional.

Possible reasons to have a genetic test include:

- Help diagnose AMKD
- Check if a person is at higher risk for AMKD
- Find out if family members are at risk for AMKD

Can be considered for living kidney donor **candidates.** Any decisions should include a discussion with your healthcare team.

Managing your health

Your healthcare team will work with you to create a treatment plan to help manage your health.

These steps may include:

- Regular medical visits
- Taking your prescribed medicines
- Exercise or physical activity
- Healthier eating, such as lowering salt in your diet

Studies on new treatments for AMKD and related kidney diseases are ongoing. You can speak with your healthcare team for more information on clinical trials and if it would be right for you.

APOL1 Quiz

Question 1 of 4

Have you heard about AMKD before?

Write your answer here.

Question 2 of 4

There is a link between two *APOL1* risk variants and higher risk for kidney disease. (Select True or False)

True
False

Question 3 of 4

What is the eGFR test? (Select one option)

A blood test to analyze kidney function

A urine test to analyze high protein

A genetic test for kidney disease risk

An ultrasound test for kidneys

Question 4 of 4

What are possible reasons to have an *APOL1* genetic test?

Help diagnose AMKD

Check for higher risk for AMKD

Find out if other family members are at risk for AMKD

All of the above (correct response)

Your feedback

Your feedback on the APOL1 infographic is important. Thank you!
Write your answer here.

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Resources

Social Determinants of Health and Chronic Kidney Disease
https://www.kidney.org/atoz/content/social-determinants-health-and-chronic-kidney-disease

Link to the National Kidney Foundation's Social Determinants of Health web page.

Chronic Kidney Disease
https://www.kidney.org/atoz/content/about-chronic-kidney-disease

Link to National Kidney Foundation’s About Chronic Kidney Disease web page.

Estimated glomerular filtration rate (eGFR)
https://www.kidney.org/atoz/content/gfr

Link to the National Kidney Foundation's Estimated Glomerular Filtration Rate (eGFR) web page.

Urinary albumin-to-creatinine ratio (UACR):
https://www.kidney.org/atoz/content/uacr

Link to the National Kidney Foundation's Urine albumin-creatinine ratio (uACR) web page.

Kidney Tests
https://www.kidney.org/atoz/content/tests-to-check-your-kidney-health

Link to the National Kidney Foundation's Kidney Tests web page.

Clinical trials (NKF web resources)
https://www.kidney.org/atoz/content/clinical-trials

Link to the National Kidney Foundation's Clinical Trial's web page.