

Genetics of Cornelia de Lange Syndrome

What causes Cornelia de Lange syndrome?

To read some introductory information about genetics go to the [key topics section](#) and select 'genetics' from the drop down menu.

The genetic causes of Cornelia de Lange syndrome are complex and continue to be researched. A change (mutation) in one of five genes (NIPBL, SMC1A, SMC3, RAD21 and HDAC8) is known to result in Cornelia de Lange syndrome.

Changes to a gene (NIPBL) on the short arm of chromosome 5 have been found in around half (60%) of individuals with Cornelia de Lange syndrome. Changes to the other genes are less common (SMC1A = 5%; SMC3 = 5%; HDAC8 = 5%; RAD21 = below 1%). Research to fully understand all of the genetic causes of the syndrome is still ongoing.

There are different subtypes of Cornelia de Lange syndrome. These are 'Classic', 'Mild' and 'Atypical' forms of the syndrome. There may be differences in the genetic mechanism underlying these different subtypes. However, this is not yet completely understood.

Is there a genetic test for Cornelia de Lange syndrome?

Genetic tests for all of the genes associated with Cornelia de Lange syndrome have been developed. You can ask your GP for a referral to a clinical geneticist if you feel it would be useful to discuss the possibility of testing for your child with Cornelia de Lange syndrome. Genetic testing is not always appropriate or necessary (particularly if your doctor is very certain about the [clinical diagnosis](#)).

If your child is tested it is important to remember that the genetic changes on chromosome 5 (NIPBL mutations) that cause Cornelia de Lange syndrome have only been found in around 60% of individuals with the syndrome (only 30% for those who are mildly affected). Limitations in genetic testing technology means that not all changes on chromosome 5 will be found and changes to other genes may be the cause. In a proportion of individuals with Cornelia de Lange syndrome the genetic change is not present in the blood DNA and testing of other tissues such as skin may be required.