



## SETBP1 disorder

SETBP1 disorder is a condition that involves speech and language problems, intellectual disability, and distinctive facial features.

In people with SETBP1 disorder, problems with expressive language skills (vocabulary and the production of speech) are generally more severely affected than receptive language skills (the ability to understand speech). Speech development is limited to a few words or no speech. Affected individuals often communicate using gestures or by mimicking the expressions of others.

Individuals with SETBP1 disorder have intellectual disability that can range from mild to moderate. They may also have behavioral problems, such as attention-deficit/hyperactivity disorder (ADHD) or autistic behaviors that affect communication and social interaction. Affected individuals may have weak muscle tone (hypotonia); delayed development of motor skills, such as sitting, standing, and walking; or recurrent seizures (epilepsy).

Distinctive facial features in people with SETBP1 disorder can include a long face, a high forehead, eyebrows that grow together in the middle (synophrys), short eye openings (short palpebral fissures), skin folds covering the inner corner of the eyes (epicanthal folds), droopy eyelids (ptosis), puffiness of the skin around the eyes (periorbital fullness), small nostrils, a high nasal bridge, a broad tip of the nose, a thin upper lip, a high arch in the roof of the mouth (high-arched palate), and a small chin.

### Frequency

The exact prevalence of SETBP1 disorder is unknown, although it is thought to be a rare disorder. At least 45 affected individuals have been described in the scientific literature.

### Causes

SETBP1 disorder is caused by mutations in the *SETBP1* gene. This gene provides instructions for making a protein that attaches (binds) to certain regions of DNA to increase gene activity (expression). The SETBP1 protein is found throughout the body, but protein levels are highest during brain development before birth. During this time, nerve cells grow and divide (proliferate) and move (migrate) to their proper location in the brain. The SETBP1 protein is thought to control the activity of genes involved in these developmental processes.

*SETBP1* gene mutations that cause SETBP1 disorder prevent the production of any functional SETBP1 protein. It is unclear how the loss of SETBP1 protein leads to the specific features of SETBP1 disorder. A shortage of this protein probably impairs the

expression of certain genes in the brain, disrupting development. Abnormalities in certain brain regions likely underlie the speech, intellectual, and behavioral problems that can occur in SETBP1 disorder.

## **Inheritance Pattern**

This condition is inherited in an autosomal dominant pattern, which means one copy of the altered gene in each cell is sufficient to cause the disorder.

Most cases of this condition result from new (de novo) mutations in the gene that occur during the formation of reproductive cells (eggs or sperm) in an affected individual's parent or in early embryonic development. These cases occur in people with no history of the disorder in their family.

## **Other Names for This Condition**

- mental retardation, autosomal dominant 29
- MRD29
- SETBP1 related developmental delay
- SETBP1-related disorder
- SETBP1-related intellectual disability

## **Diagnosis & Management**

### Genetic Testing Information

- What is genetic testing?  
[/primer/testing/geneticTesting](#)
- Genetic Testing Registry: Mental retardation, autosomal dominant 29  
<https://www.ncbi.nlm.nih.gov/gtr/conditions/C4015141/>

## **Additional Information & Resources**

### Health Information from MedlinePlus

- Encyclopedia: Intellectual Disability  
<https://medlineplus.gov/ency/article/001523.htm>
- Encyclopedia: Speech Disorders--Children  
<https://medlineplus.gov/ency/article/001430.htm>
- Health Topic: Developmental Disabilities  
<https://medlineplus.gov/developmentaldisabilities.html>
- Health Topic: Speech and Language Problems in Children  
<https://medlineplus.gov/speechandlanguageproblemsinchildren.html>

### Genetic and Rare Diseases Information Center

- SETBP1 disorder  
<https://rarediseases.info.nih.gov/diseases/13379/setbp1-disorder>

### Additional NIH Resources

- National Institute on Deafness and Other Communication Disorders: Speech and Language Developmental Milestones  
<https://www.nidcd.nih.gov/health/speech-and-language>

### Educational Resources

- Centers for Disease Control and Prevention: Language and Speech Disorders in Children  
<https://www.cdc.gov/ncbddd/childdevelopment/language-disorders.html>
- Kennedy Krieger Institute: Developmental Disorders  
<https://www.kennedykrieger.org/patient-care/conditions/developmental-disorders>
- MalaCards: setbp1 disorder  
[https://www.malacards.org/card/setbp1\\_disorder](https://www.malacards.org/card/setbp1_disorder)
- Merck Manual Consumer Version: Communication Disorders in Children  
<https://www.merckmanuals.com/home/children-s-health-issues/ear,-nose,-and-throat-disorders-in-children/communication-disorders-in-children>
- National Organization for Rare Disorders (NORD)  
<https://rarediseases.org/rare-diseases/setbp1-disorder/>

### Patient Support and Advocacy Resources

- Child Neurology Foundation  
<https://www.childneurologyfoundation.org/>
- SETBP1 Society  
<http://www.setbp1.org/>

### Scientific Articles on PubMed

- PubMed  
<https://www.ncbi.nlm.nih.gov/pubmed?term=%28SETBP1+disorder%5BTIAB%5D%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+3600+days%22%5Bdp%5D>

### Catalog of Genes and Diseases from OMIM

- MENTAL RETARDATION, AUTOSOMAL DOMINANT 29  
<http://omim.org/entry/616078>

## Medical Genetics Database from MedGen

- Mental retardation, autosomal dominant 29  
<https://www.ncbi.nlm.nih.gov/medgen/863578>

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