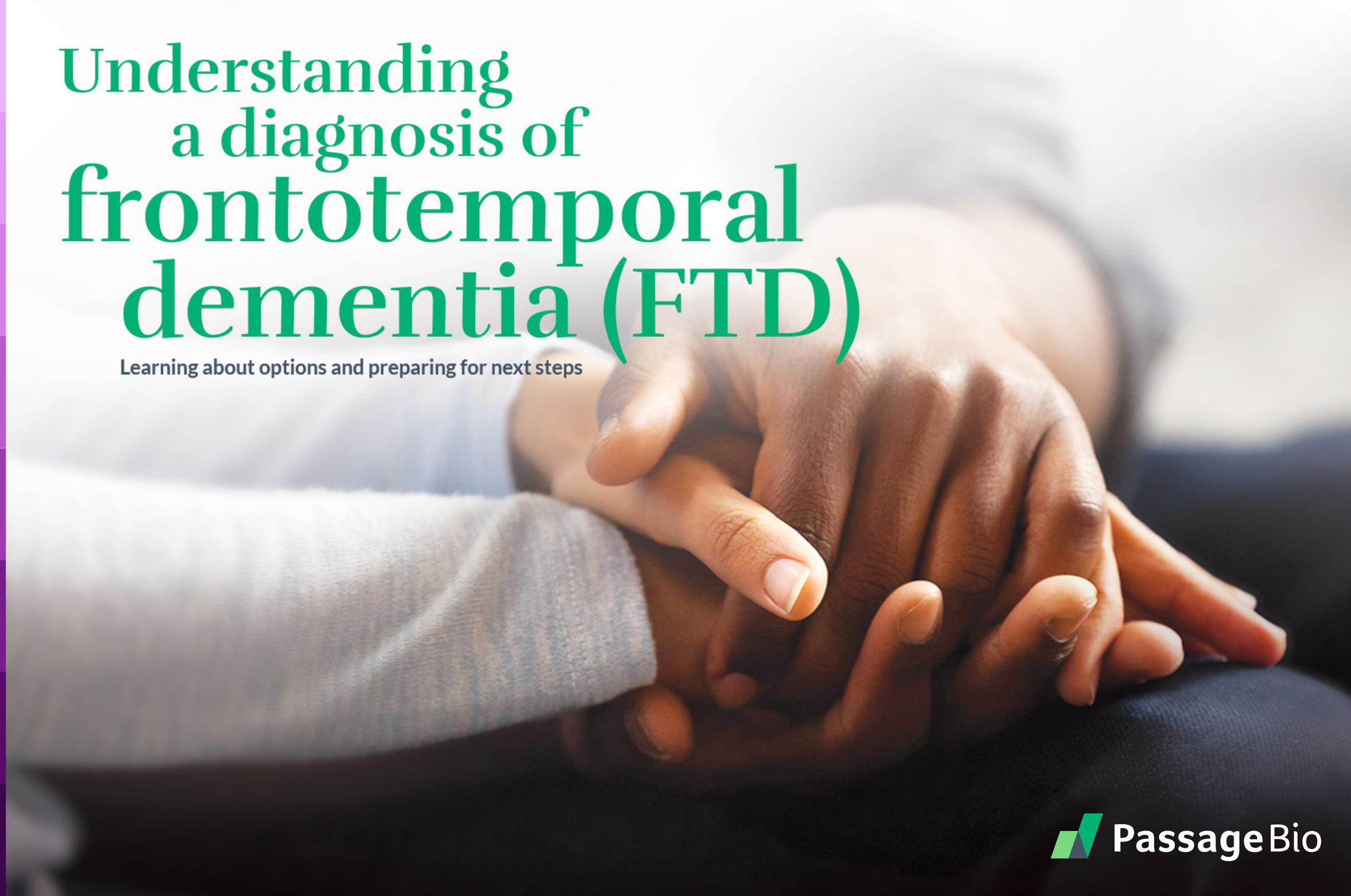
Understanding a diagnosis of frontotemporal dementia (FTD)

Learning about options and preparing for next steps



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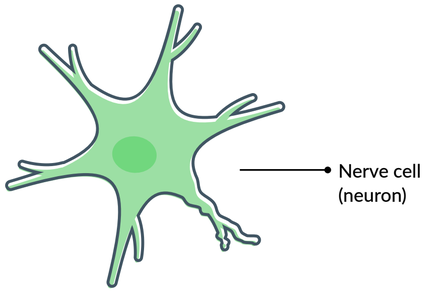
What is frontotemporal dementia?

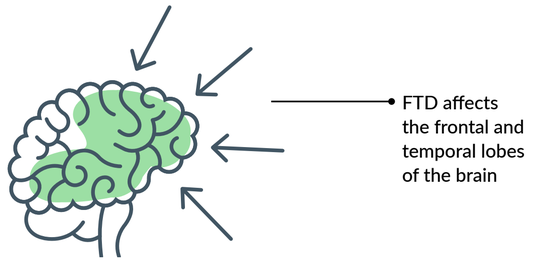
Frontotemporal dementia, or FTD for short, refers to a group of disorders that affect the frontal and temporal lobes—the areas of the brain that control personality, behavior, and language. You may also hear FTD referred to as frontotemporal degeneration.

FTD is caused by damage to nerve cells and the nervous system, called neurodegeneration



This neurodegeneration causes areas of the brain to shrink, which is called atrophy

Neurodegeneration is progressive, meaning it worsens over time.



This results in extreme changes in behavior, mood, personality, language, and movement

There is currently no cure for FTD and there are no approved treatments that are disease modifying, to address the underlying cause of the disease.

Despite limited options, doctors who specialize in FTD can do a lot to provide you or your loved one with the best quality of life possible—including connecting you with potential new treatments.

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What are the symptoms of FTD?

FTD has 2 subtypes

They are based on which symptoms appear first and are most significant:

- **Behavioral variant FTD (bvFTD)** is the most common type of FTD that causes behavioral symptoms
- **Primary progressive aphasia (PPA)** is associated with changes in ability to communicate

Note: In rare cases, the first symptoms will be movement-related.

FTD symptoms can look like other common disorders

Doctors may misdiagnose FTD as a mental health condition rather than a neurological disorder. It can also be misdiagnosed as Alzheimer's disease. However, FTD tends to occur at a younger age (40-65 years) than Alzheimer's.

People with either subtype may present changes in behavior, speech, and thinking:

Loss of inhibition

Apathy (lack of interest)

Social withdrawal

Repetitive compulsive behaviors

Lack of sympathy or empathy

Decline in ability to plan, focus, and get things done

Difficulty speaking or choosing words

If you suspect that you or your loved one has FTD, it is important to go to a neurologist who specializes in FTD to make sure you get the answers you're looking for.

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What types of specialists care for someone with FTD?

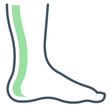
Many different healthcare professionals may be involved in caring for someone with FTD—they often work together as a team to provide the best care.

Specialists and their roles in FTD care

Neurologist and nursing team
- Diagnosis
- Manage neurological symptoms

Psychologist/psychiatrist
- Suspect FTD and refer to neurologist
- Manage psychological symptoms

Speech therapist and nutritionist
- Manage speaking and language symptoms
- Assist with eating/swallowing



Physical therapist
- Manage motor symptoms

Primary care physician
- Help identify symptoms and refer to specialists

Social worker/case manager
- Assist with life planning and healthcare

Occupational therapist
- Help adapt activities to accommodate symptoms

Genetic counselor
- Help plan and explain genetic tests
- Provide support and guidance

A dedicated care team might be best for you or your loved one. To find a care team, you can search for nearby centers that specialize in FTD. These centers can connect you with experienced specialists.

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What are the long-term effects of FTD?

FTD worsens over time and can lead to severely disabling symptoms known as neurocognitive deterioration. As it progresses, it can cause immobility and loss of speech and expression. At this point, someone living with FTD may need assistance to help with their care. There is currently no cure for FTD. Survival averages 8 years after the onset of neurocognitive deterioration. Many factors impact survival of FTD. You or your loved one can learn more by talking to a doctor.

If you or your loved one have been diagnosed with FTD, help is available. There are several organizations that support families living with the daily challenges that come with FTD. See our support page for more information.

Scientists are working on potential new FTD treatments with the hope of altering the disease course. These treatments are being studied in clinical trials.

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What causes FTD?

The cause of FTD is unknown for a majority of people with the disease. Over time, we've learned there is a strong genetic component to FTD. This means that there may be a family history of FTD. Up to 40% of people with FTD have a family history of dementia, and there is more likely a genetic cause. However, some people without a family history can also have a genetic cause. In people with genetic FTD, doctors are able to determine the cause of the disease through genetic testing.

DNA is an instruction manual for how the body grows and develops

Genes are sections of DNA that tell cells how to function

A change in the genetic code is called a mutation or variant

Mutations can affect how cells work

Most people with a genetic form of FTD have mutations in 1 of 3 genes:

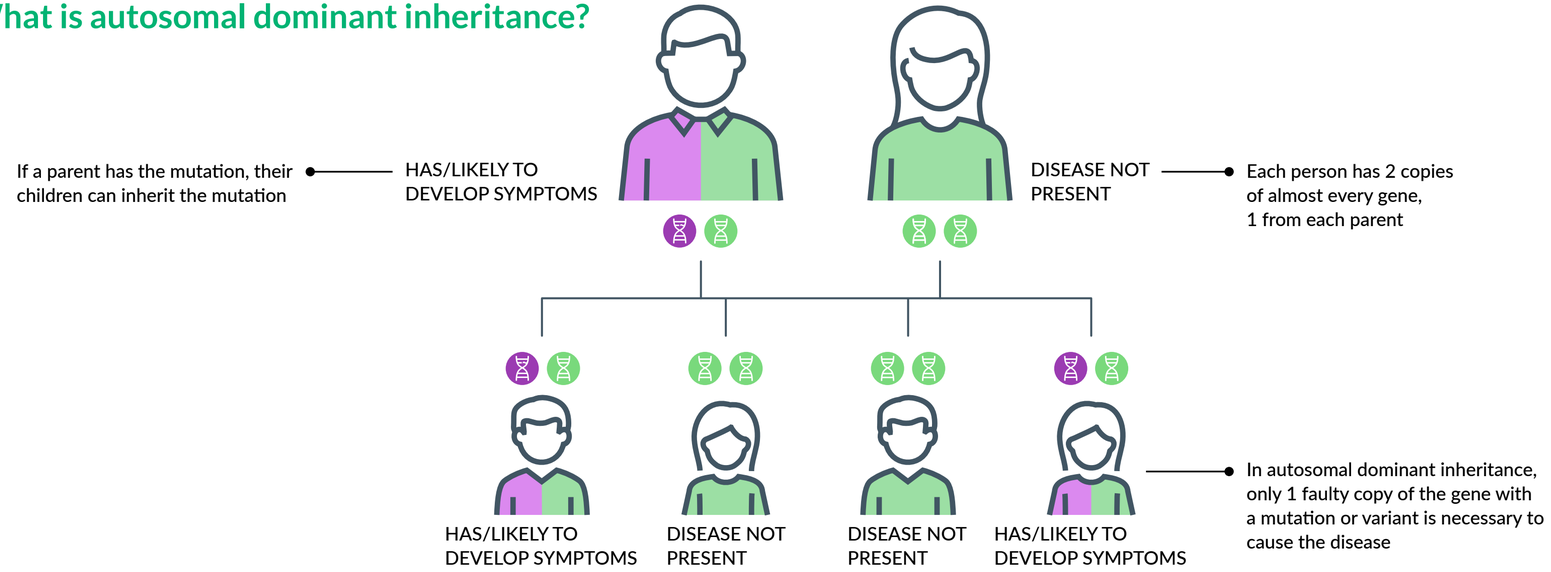
GRN (also called progranulin gene mutation)

MAPT (also called a tau gene mutation)

C9orf72 (also called *C9* gene mutation)

These forms of genetic FTD are inherited in an autosomal dominant pattern

What is autosomal dominant inheritance?



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Why is it important to consider genetic testing?

Genetic testing for FTD can help doctors:

Determine if your or your loved one's FTD was caused by a mutation

Understand more about FTD symptoms or disease course

Identify clinical trials that you or your loved one may be eligible for

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What is genetic counseling and testing?

Genetic testing can identify differences in genes. It is performed using a cheek swab, saliva, or a blood sample.

Genetic counselors support people who have, or may be at risk for, genetic disorders. They:

- Help you navigate and make an informed decision if genetic testing is the right decision for you
- Tell you what you should know before testing
- Determine who in a family should be tested for a mutation
- Explain the results
- Help you adjust to this information and support you through the process

InformedDNA® Genetics, Decoded.

InformedDNA provides no-cost genetic counseling and testing for people living with FTD.* Learn more: **informeddna.com/passagebio-ftd/**

*The InformedDNA FTD testing program is sponsored by Passage Bio. However, no personal identifying information of individuals participating in this genetic counseling and testing program will be shared with the company. InformedDNA no-cost genetic testing and counseling is only available to US residents. If you are not a US resident, talk to your doctor about your options for genetic testing and counseling.

See our support page for resources on how to access genetic counseling.

Can FTD be treated?

There are currently no approved treatments for FTD that address the underlying cause of the disease.

There is a difference between treating a disease and managing symptoms.

Treatment addresses the underlying cause of a disease

Management focuses on relieving symptoms of a disease

If you or your loved one are living with FTD, doctors may prescribe medications or recommend therapy and caregiver strategies that can help manage symptoms, including changes in behavior and language. However, no current treatments slow or stop the worsening of symptoms.

Scientific advancements provide opportunities in FTD. Potential disease-modifying FTD treatments are being studied in clinical trials.

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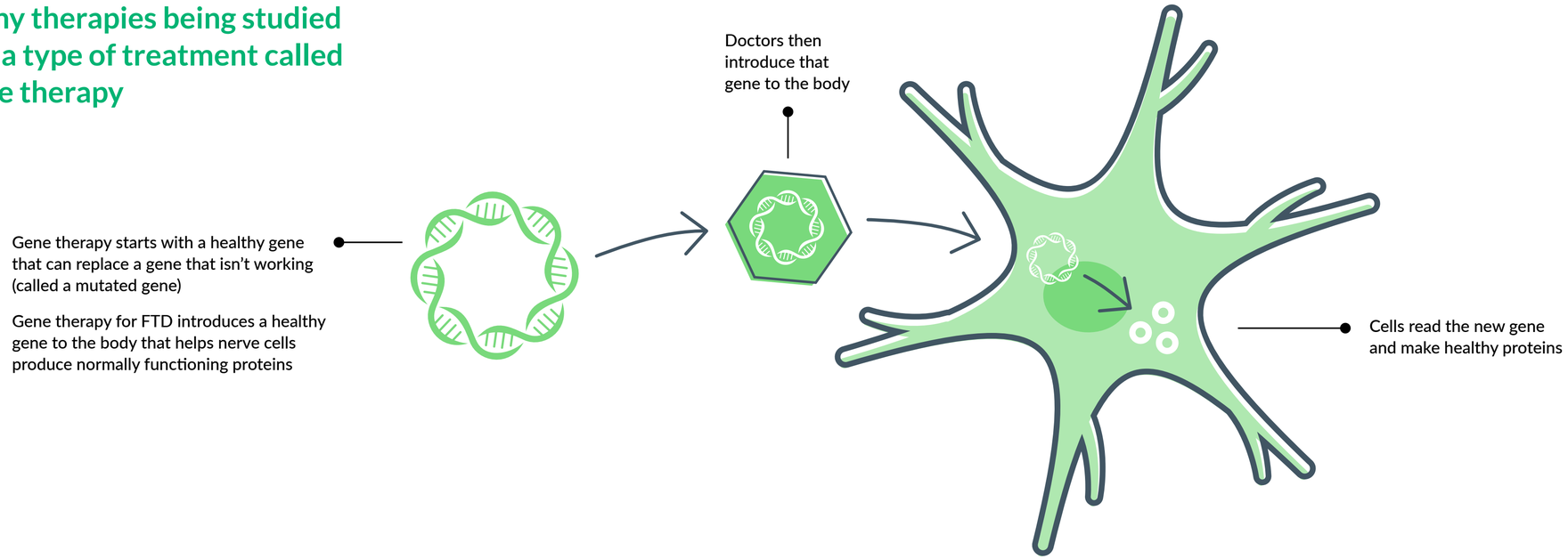
Are there treatments being studied for FTD?

Clinical trials are the way potential treatments become available for diseases. There are many potential FTD treatments being studied that may be disease modifying.

Some of these therapies are only for people with certain FTD mutations, making genetic testing even more important to consider for people living with FTD.

Many therapies being studied use a type of treatment called gene therapy



People living with genetic FTD may be eligible to participate in a clinical trial that is studying the potential of new treatments.

If you or your loved one is considering participating in a trial, it is important to learn about individual trial requirements and risks. View active trials at clinicaltrials.gov.

What is a clinical trial?

Clinical trials are research studies where doctors see if a potential treatment is safe and effective in people. The effectiveness, or ability of a treatment to help people, is often called efficacy. Doctors who work on clinical trials are called Principal Investigators, or PIs.

People choose to be in clinical trials because they may benefit from the potential treatment being studied or because they want to help answer a specific health-related question.

How a potential treatment gets approved

All of the prescription medicines available today have been studied and approved through clinical trials.

1. 

Scientists gather evidence that a potential treatment could help treat a disease or disorder

2. 

PIs study the potential treatment in people with the disease. There are often 3 phases of clinical trials:

- Phase 1 tests safety and dose
- Phase 2 tests effectiveness and safety
- Phase 3 tests effectiveness and safety in a larger group of patients

In rare diseases, which have low numbers of patients and limited treatment options, researchers often combine phases to answer more questions in a smaller group of patients. For example, you may see a trial labeled as Phase 1/2. This can speed up the time it takes to get approval for treatments.

3. 

Study results are evaluated to determine whether the potential treatment significantly benefits people with the disease

4. 

The Food and Drug Administration (FDA) and other government agencies around the world assess the results of potential treatments and approve only those treatments that show safety and efficacy

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You're not alone in the fight against FTD

There are organizations dedicated to advancing research and helping people and families with FTD. These communities help people living with FTD access support, expert clinicians, genetic testing and counseling, and clinical trials.

FTD patient advocacy organizations can help you or your loved one with FTD:

Understand disease management options

Connect with physicians and other experts

Be part of a community of logistical and emotional support

Access healthcare assistance programs and services

The resources below may be helpful for you or your loved one as you navigate FTD:

AFTD
theaftd.org

FTD Registry
ftdregistry.org

Penn FTD Center
pennftdcenter.org

Dementia Society of America
dementiasociety.org

World FTD United
worldftdunited.net

National Society of Genetic Counselors (NSGC)
findageneticcounselor.nsgc.org

National Institute of Neurological Disorders and Stroke (NINDS)
ninds.nih.gov/Disorders/All-Disorders/Frontotemporal-Dementia-Information-Page

National Institute of Aging (NIA)
nia.nih.gov/health/what-are-frontotemporal-disorders

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Glossary

Autosomal dominant – A term to describe a genetic disorder caused by a person inheriting only 1 copy of a mutated gene from either parent.

Cell – A unit that makes up all living things and the parts of the body. Cells provide structure for the body, take in nutrients from food, and perform tasks that help the body work properly.

Clinical trial – A study designed to evaluate the safety, effectiveness, and dosing of a new treatment in people.

DNA – The genetic code that instructs cells how to work. DNA is hereditary material that is in every cell in the body.

Frontal lobe – The area of the brain, located at the front of the head, that is responsible for functions such as speech and language, personality, planning, memory, decision making, regulating emotions, and other functions.

Genes – Sections of DNA that determine specific genetic traits.

Gene therapy – A medical approach where an individual gene is introduced to the body in order to correct a genetic disease.

Genetic disease – A disease caused by one or more genetic mutations.

Genetic mutation – (Also called genetic variant) A change in the code of a specific gene.

Heritable – Characteristics that are able to be inherited or passed on from parent to offspring.

Logopenic PPA – A type of primary progressive aphasia that affects one's ability to find the right words even though they can understand words and sentences.

Neurodegeneration – The loss of the structure and ability of nerves to work.

Non-fluent PPA – (Also known as agrammatic PPA) A type of primary progressive aphasia that affects one's ability to put sentences together or speak at all.

Proteins – Particles that play many different important roles in the body. Proteins do most of the work in cells and make up much of the body's tissues and organs.

Semantic PPA – A type of primary progressive aphasia that affects one's ability to recognize words or faces.

Temporal lobe – The area of the brain responsible for processing memories, recognizing sounds, and assigning meaning to words. The brain has a right and left temporal lobe, located on each side of the head.

Passage Bio is committed to transforming lives

Patients drive every decision we make, from which therapies to pursue to how we will pursue them. We focus on developing effective treatments that are desperately needed for central nervous system (CNS) disorders, like FTD.

We believe that collaboration is important. We are committed to working with patient advocacy groups that are also committed to transforming lives.

For more information about Passage Bio and our work to develop an effective treatment for FTD, please visit us at PassageBio.com.

upliFT-D
A Clinical Trial for Frontotemporal Dementia with Progranulin Gene Mutations

Passage Bio is studying a potential new therapy called PBFT02 for the treatment of FTD caused by a *GRN* or *C9orf72* mutations.

To learn more about PBFT02, visit FTDClinicalTrial.com.

People living with FTD may be eligible for clinical trials, so early action is critical.

If you would like more information, please talk with a healthcare professional or send inquiries to Passage Bio at patientservices@passagebio.com.

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