# What is the effect of G1192A (G;A)?

This variant controls [cognitive function, working memory, and gray matter volume in the brain](https://www.ncbi.nlm.nih.gov/pubmed/24819610). Males with this variant have faster [information processing](https://www.ncbi.nlm.nih.gov/pubmed/25674902), including [much better behavioral performance, more efficient brain activity, and a larger brain volume.](https://www.ncbi.nlm.nih.gov/pubmed/24819610) Females with this variant exhibit slower information processing, which may worsen ME/CFS cognition issues. [The brain’s control of vision is also impaired](https://www.ncbi.nlm.nih.gov/pubmed/24934182), which may worsen ME/CFS related vision issues.

The brain changes caused by this variant is the [strongest genetic risk factor for developing nicotine dependence in African Americans and Caucasians](https://www.ncbi.nlm.nih.gov/pubmed/26239294). It may cause difficulties with smoking cessation and increases the number of [cigarettes smoked per day](https://www.ncbi.nlm.nih.gov/pubmed/27344179). People are [15% less likely](https://www.ncbi.nlm.nih.gov/pubmed/24727484) to be able to quit smoking and respond worse to [nicotine replacement therapy(NRT)](https://www.ncbi.nlm.nih.gov/pubmed/28884473). This may be caused due to the variant [increasing the pleasure and mental stimulation experienced after smoking, as well as withdrawal severity](https://www.ncbi.nlm.nih.gov/pubmed/25948103). This variant is also associated with a greater risk for [lung cancer and COPD](https://www.ncbi.nlm.nih.gov/pubmed/27344179).

# What should I do about this?

People should not smoke. If you do smoke, be aware of your risk for dependency or increased difficulty of quitting smoking. Consider regular checks for lung cancer. Avoid radiation, toxins such as heavy metal, and eat more yellow and orange fruits and vegetables.

Consult your physician on [medications](http://www.uniprot.org/uniprot/P30532#pathology\_and\_biotech) that act on variants in CHRNA5, including [Ethanol](https://www.drugbank.ca/drugs/DB00898), [Galantamine](https://www.drugbank.ca/drugs/DB00674), and [nicotine](https://www.drugbank.ca/drugs/DB00184).

# What is the effect of G1192A (A;A)?

This variant controls [cognitive function, working memory, and gray matter volume in the brain](https://www.ncbi.nlm.nih.gov/pubmed/24819610). Males with this variant have much faster [information processing](https://www.ncbi.nlm.nih.gov/pubmed/25674902), including [much better behavioral performance, more efficient brain activity, and a larger brain volume.](https://www.ncbi.nlm.nih.gov/pubmed/24819610) Females with this variant exhibit much slower information processing, which may worsen ME/CFS cognition issues. [The brain’s control of vision is also impaired](https://www.ncbi.nlm.nih.gov/pubmed/24934182), which may worsen ME/CFS related vision issues.

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# What should I do about this?

People should not smoke. If you do smoke, be aware of your risk for dependency or increased difficulty of quitting smoking. Consider regular checks for lung cancer. Avoid radiation, toxins such as heavy metal, and eat more yellow and orange fruits and vegetables. Pregnant women should consider [supplemental vitamin C](https://www.ncbi.nlm.nih.gov/pubmed/24838476).

Consult your physician on [medications](http://www.uniprot.org/uniprot/P30532#pathology\_and\_biotech) that act on variants in CHRNA5, including [Ethanol](https://www.drugbank.ca/drugs/DB00898), [Galantamine](https://www.drugbank.ca/drugs/DB00674), and [nicotine](https://www.drugbank.ca/drugs/DB00184).

<# A78573551G (A;G) #>

# What is the effect of A78573551G?

This variant acts in the part of the [brain](https://www.ncbi.nlm.nih.gov/pubmed/26220977) that controls motor function, problem solving, language, judgement, impulse control, sexual behavior, and memory formation and processing. This may cause ME/CFS related cognition issues. This variant causes [greater gene expression](https://www.ncbi.nlm.nih.gov/pubmed/21229299), and is associated with increased [risk of ](https://www.ncbi.nlm.nih.gov/pubmed/25233467)[lung cancer](https://www.ncbi.nlm.nih.gov/pubmed/21229299) and [nicotine addiction](https://www.ncbi.nlm.nih.gov/pubmed/28132300), especially in [Caucasians](https://www.ncbi.nlm.nih.gov/pubmed/26270548).

# What should I do about this?

People should not smoke. If you do smoke, be aware of your risk for dependency or increased difficulty of quitting smoking. Consider regular checks for lung cancer. Avoid [radiation, toxins such as heavy metal](https://www.cancer.gov/types/lung/patient/lung-prevention-pdq#section/all), and eat more [yellow and orange fruits and vegetables](https://www.cancer.gov/types/lung/patient/lung-prevention-pdq#section/all).

Consult your physician on [medications](http://www.uniprot.org/uniprot/P30532#pathology\_and\_biotech) that act on variants in CHRNA5, including [Ethanol](https://www.drugbank.ca/drugs/DB00898), [Galantamine](https://www.drugbank.ca/drugs/DB00674), and [nicotine](https://www.drugbank.ca/drugs/DB00184).

# What is the effect of A78581651T?

This variant acts in the part of the [brain](https://www.ncbi.nlm.nih.gov/pubmed/26220977) that controls motor function, problem solving, language, judgement, impulse control, sexual behavior, and memory formation and processing. This variant also is associated with increased risk of [lung cancer](https://www.ncbi.nlm.nih.gov/pubmed/25233467) and an [increased number of cigarettes smoked per day](https://www.ncbi.nlm.nih.gov/pubmed/26981579).

Your variant is [2X](https://www.ncbi.nlm.nih.gov/pubmed/27099524) more common in [ME/CFS patients](https://www.ncbi.nlm.nih.gov/pubmed/27099524). It causes the CHRNA5 protein to be malformed, which impacts natural killer cell (NKC) activity. Natural killer cells are a type of white blood cell found in the blood, bone marrow, spleen, and lymph nodes. They kill viral infected cells and tumorous cells. Many patients with ME/CFS have NKC with lower functional ability to fight infections, and [this impairment is associated with increased illness severity](https://www.cdc.gov/me-cfs/about/possible-causes.html). Compared with the general population, CFS patients have NKC that are [half as effective](https://www.ncbi.nlm.nih.gov/pubmed/27099524).

# What should I do about this?

People should avoid smoking, and proactively check for lung cancer if they smoke.

[Histone deacetylase inhibitors (HDACi), including suberoylanilide hydroxamic acid and valproic acid,](https://www.ncbi.nlm.nih.gov/pubmed/17349632/) impair NKC function and should be avoided.

Pharmaceuticals that increase natural killer cell function include:

- [Antiviral drugs such as acyclovir and ganciclovir](https://www.ncbi.nlm.nih.gov/pubmed/23993353) may improve cellular function.

- [Papillomavirus therapies, including topical agents and immunostimulants,](https://www.ncbi.nlm.nih.gov/pubmed/23993353) may activate NK cells.

- [Cytokine therapies](https://www.ncbi.nlm.nih.gov/pubmed/23993353), such as [IFN-α](https://www.cancer.gov/about-cancer/treatment/types/immunotherapy/bio-therapies-fact-sheet) in CNKD1, may induce higher levels of NKC activity by [activating white blood cells](https://www.cancer.gov/about-cancer/treatment/types/immunotherapy/bio-therapies-fact-sheet).

Dietary supplements that increase natural killer cell function include:

- [Resveratrol](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4855330/) dietary supplements stimulate the immune system by increasing NKC function.

- [Myricetin](https://www.ncbi.nlm.nih.gov/pubmed/25075019), found in food and red wine, may increase NKC activity.

- [Quercetin](https://www.ncbi.nlm.nih.gov/pubmed/19449452), found in onions and fruits, may improve NKC and T cell function.

- [Bulgarian yogurt fermented with L. delbrueckii ssp. Bulgaricus augments NKC activity.](https://www.ncbi.nlm.nih.gov/pubmed/26686726)

- [Zinc](https://www.ncbi.nlm.nih.gov/pubmed/27021581) helps to improve immune system activity and response.

- [Inositol hexaphosphate (IP6), found in germ, bran, and whole kernel corn](https://www.ncbi.nlm.nih.gov/pubmed/11366552) may activate the immune system and help fight bacterial and fungal infections.

- [Arabinoxylan rice bran (MGN-3/Biobran](https://www.ncbi.nlm.nih.gov/pubmed/25541298) increases activation and stimulates cell killing activity.

There is currently no data on the interaction between these variants. However, some information exists on the individual variants.

# What is the effect of G1192A (A;A)?

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# What is the effect of A78573551G?

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# What is the effect of A78581651T?

This variant acts in the part of the [brain](https://www.ncbi.nlm.nih.gov/pubmed/26220977) that controls motor function, problem solving, language, judgement, impulse control, sexual behavior, and memory formation and processing. This variant also is associated with increased risk of [lung cancer](https://www.ncbi.nlm.nih.gov/pubmed/25233467) and an [increased number of cigarettes smoked per day](https://www.ncbi.nlm.nih.gov/pubmed/26981579).

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# What should I do about this?

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