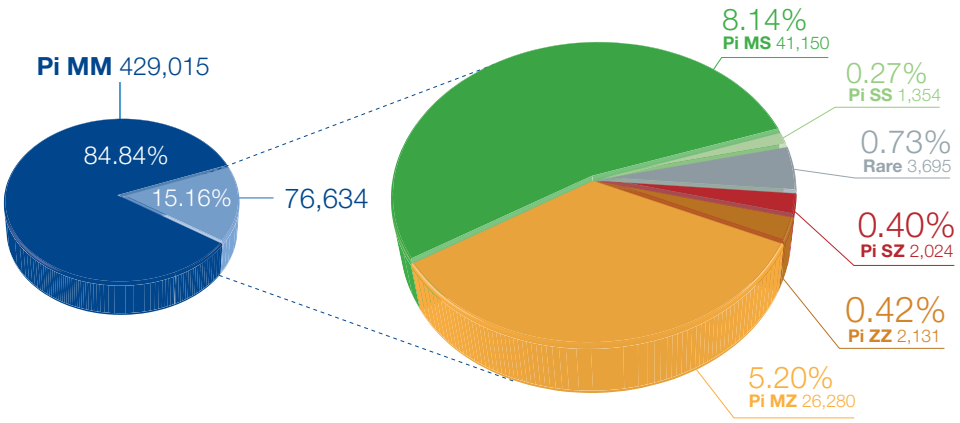
Patients with deficient alleles may be more common than you think[1]

Approximately 1 in 7 patients with COPD or treatment resistant asthma had deficient alleles[2]

Prevalence and types of deficient alleles found in patients screened for alpha$_1$-antitrypsin (AAT) deficiency[1,2]



Early screening with AlphaID™ can detect deficient alleles

AlphaID screens for the most-prevalent alleles associated with AAT deficiency, also known as alpha-1, including **S, Z, F, I, rare alleles, and null alleles**.[2]

- **15% of patients** screened were positive for at least **1 deficient allele**[3]
- Deficient alleles can be passed on to **family members, including children**[4,5]
- The "F" and "I" allele combinations, as well as rare variants, were found in **greater than 1% of more than 1 million patients screened**[2]

For more information, please contact your Grifols sales representative

Scan here to order AlphaID™

The receipt of this free testing service does not create any expectation or obligation to purchase or use any product or service offered by any manufacturer.

GRIFOLS

AlphaID™

AlphaID™ screens for 98% of all alleles found in people with AAT deficiency[2]

Below is an overview of the alleles that are identified with AlphaID™

Allele type	Genetic risk of lung disease?	Genetic risk of liver disease?	Details
M	No	No	The family of normal alleles is referred to as M[6,7]
S	Yes	No	S produced moderately low levels of alpha$_1$-antitrypsin (AAT)[6,8-10]
Z	Yes	Yes	Z produced very little AAT[6]
F	Yes	No	F is dysfunctional as it produces a normal quantity of AAT protein, but the protein does not function properly[6]
I	Yes	No	I is dysfunctional as it produces a normal quantity of AAT protein, but the protein does not function properly[6,8]
M Malton	Yes	Yes	M-like deficient allele with serum AAT levels approximately 10% to 15% of normal AAT levels[8,11]
M Palermo	Unknown	Unknown	M-like deficient allele. Insufficient data available to determine genetic risk[8]
M Nichinan	Yes	Unknown	M-like deficient allele which undergoes a conformational change with a consequent decrease in serum AAT levels[8,12]
M Procida	Yes	Unknown	M-like deficient allele which has mildly reduced inhibitory activity, similar to that of the S allele[8,10,13]
M Heerlen	Yes	No	M-like deficient allele with an increased genetic risk of lung disease[8,10]
P Lowell	Yes	Unknown	PI*P allele with an increased genetic risk of lung disease[8,10]
P Duarte	Yes	Yes	PI*P allele with an increased genetic risk of lung disease[8]
Y Barcelona	Yes	Unknown	Less frequent allele with an increased genetic risk of lung disease[14,15]
S Iiyama	Yes	Yes	Less frequent allele with an increased genetic risk of both lung and liver disease[6,8]
Q0 Granite Falls	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 West	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 Bellingham Falls	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 Mattawa	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 Ourem	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 Clayton	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]
Q0 Saarbruecken	Yes	No	NULL allele can result in either no mRNA product or no protein production[10]

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