

Variant: *NM\_000277.2(PAH):c.472C>T (p.Arg158Trp)*

Version: 1.0

[CA229570](#)

[102693 \(ClinVar\)](#)

**Gene:** PAH ([HGNC:5053](#))

**Condition:** phenylketonuria ([MONDO:0009861](#))

**Inheritance Mode:** Autosomal recessive inheritance

**UID:** faad1844-5076-4b6f-b671-eeb06035449a

**Approved on:** 2018-08-10

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### *HGVS expressions*

**NM\_000277.2:c.472C>T**

NM\_000277.2(PAH):c.472C>T (p.Arg158Trp)

NC\_000012.12:g.102866633G>A

CM000674.2:g.102866633G>A

NC\_000012.11:g.103260411G>A

CM000674.1:g.103260411G>A

NC\_000012.10:g.101784541G>A

NG\_008690.1:g.55970C>T

NG\_008690.2:g.96778C>T

NM\_000277.1:c.472C>T

NM\_001354304.1:c.472C>T

NM\_000277.3:c.472C>T

ENST00000307000.7:c.457C>T

ENST00000549111.5:n.568C>T

ENST00000551988.5:n.530+10829C>T

ENST00000553106.5:c.472C>T

**Pathogenic**

Met criteria codes **5**

**PM3\_Strong** **PS3** **PP3** **PM2**

**PP4\_Moderate**

Evidence Links **5**

Expert Panel

[Phenylketonuria VCEP](#)

Criteria Specification Information **!**

[Criteria Specifications for this VCEP](#)

Evidence submitted by expert panel

#### ***Phenylketonuria VCEP***

**PAH-specific ACMG/AMP criteria applied: PM2: Extremely low frequency. ExAC MAF=0.00019.; PP3: Predicted deleterious in SIFT, Polyphen-2, MutationTaster. REVEL=0.939; PS3: 2% mutant enzyme activity in BioPKU; PP4\_Moderate: Detected in at least 3 patients with PAH deficiency. BH4 deficiency ruled out in 1 patient. (PMID:1307609; PMID:10429004; PMID:9634518); PM3\_Strong: Detected with 3 pathogenic/likely pathogenic variants (PMID:14681498; PMID:23430918). In summary this variant meets criteria to be classified as pathogenic for phenylketonuria in an autosomal recessive manner based on the ACMG/AMP criteria applied as specified by the PAH Expert Panel: (PM2, PP3, PS3, PP4\_Moderate, PM3\_Strong).**

## Met criteria codes

### PM3\_Strong



Detected with 3 pathogenic/likely pathogenic variants

Table 2. Mutant Genotypes. p.R158W: p.R261P (VarID102832, LP). p.R158W: p.R408W (VarID577, Path). p.I65T (VarID:636, P/LP): p.R158W. [PubMed:23430918](#)

In case 2, P407S (VarID102568, clinical significance not provided) was detected in one allele and R158W in the other allele. [PubMed:14681498](#)

### PS3



2% mutant enzyme activity in BioPKU

### PP3



Predicted deleterious in SIFT, Polyphen-2, MutationTaster. REVEL=0.939

### PM2



Extremely low frequency. ExAC MAF=0.00019.

### PP4\_Moderate



Detected in at least 3 patients with PAH deficiency. BH4 deficiency ruled out in 1 patient.

R158W was detected. In all patients, hyperphenylalaninemia had been detected by national mass screening programs, and PAH deficiency had been assessed after exclusion of a defect in tetrahydrobiopterin metabolism.

[PubMed:9634518](#)

A novel Arg158 (CGG)-to-Trp158 (TGG) mutation was identified in exon 5 of the PAH gene in a Chinese PKU patient.

[PubMed:1307609](#)

R158W was observed in the study. [PubMed:10429004](#)

## Curation History [↗](#)

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