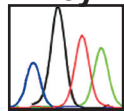


# Can you spot a cancer mutation?

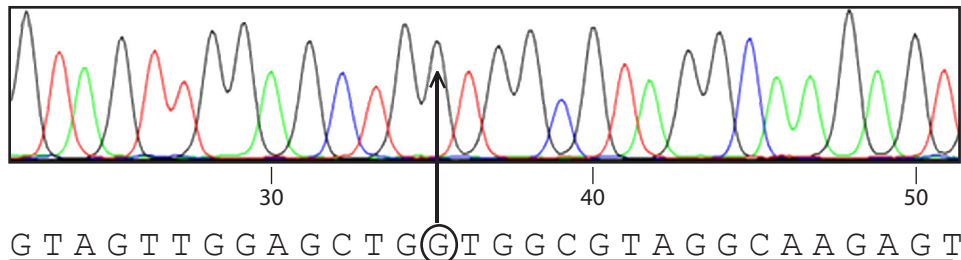
Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.

**Key**

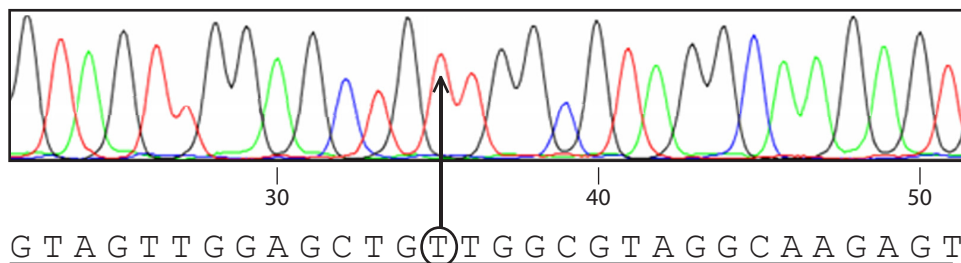


C - Cytosine  
G - Guanine  
T - Thymine  
A - Adenine

## Healthy cell DNA

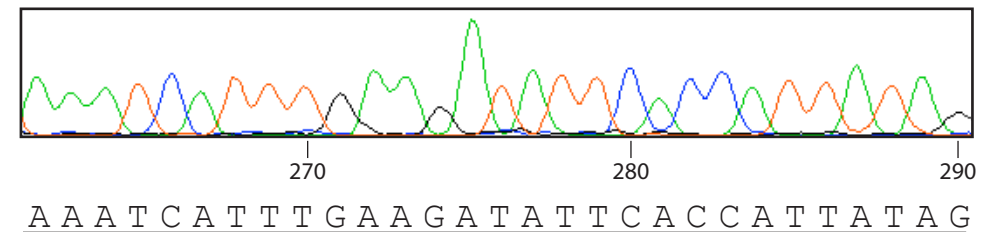


## Tumour cell DNA

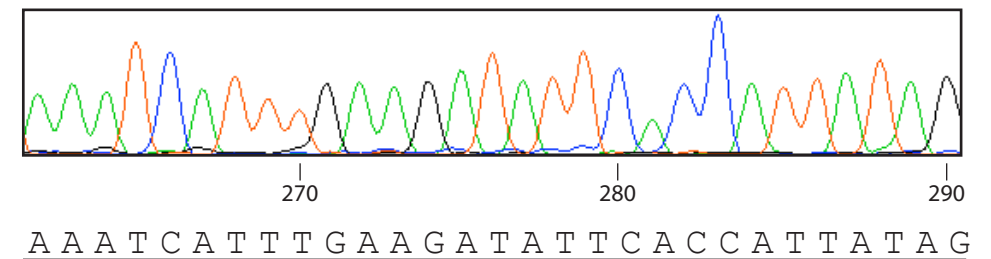


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
12	GGT	GTT	Glycine (G)	Valine (V)

## Healthy cell DNA



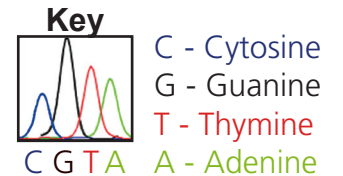
## Tumour cell DNA



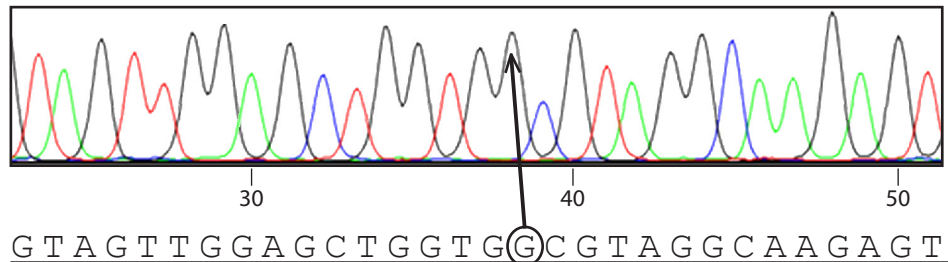
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

# Can you spot a cancer mutation?

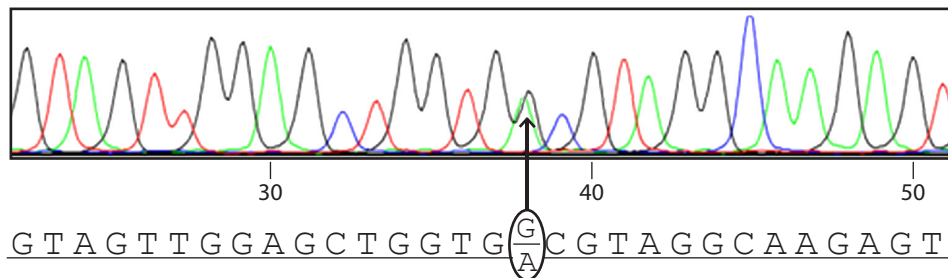
Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.



## Healthy cell DNA

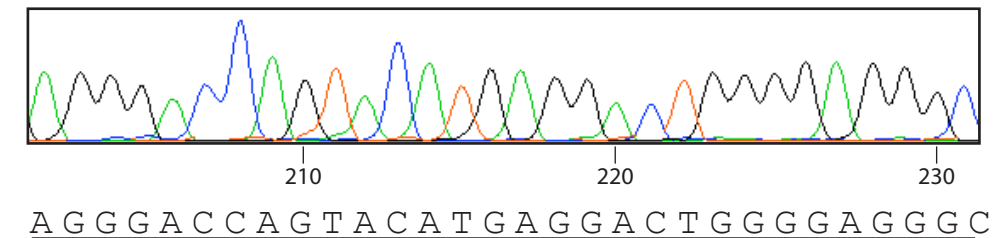


## Tumour cell DNA

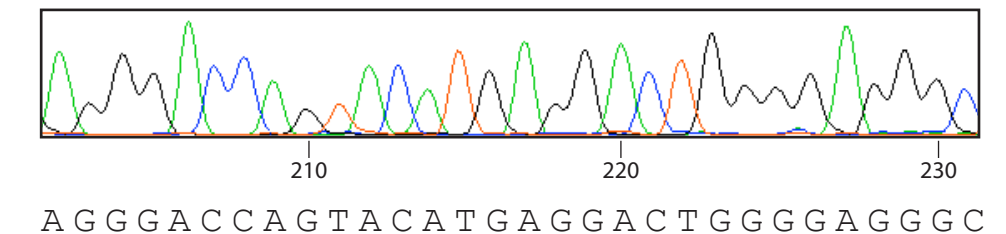


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
13	GGC	GAC	Glycine (G)	Aspartic Acid (D)

## Healthy cell DNA



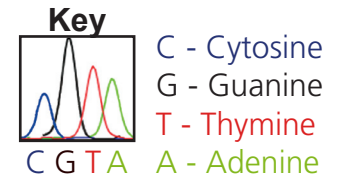
## Tumour cell DNA



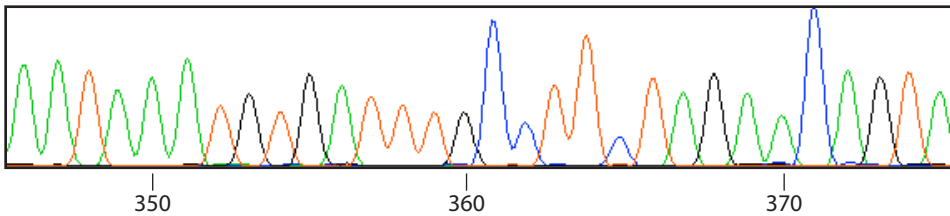
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

# Can you spot a cancer mutation?

Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.

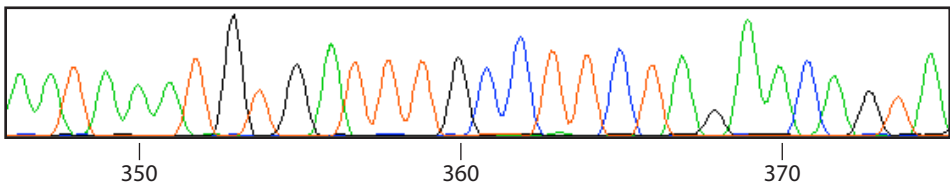


## Healthy cell DNA



A A T A A A T G T G A T T T G C C T T C T A G A A C A G T A

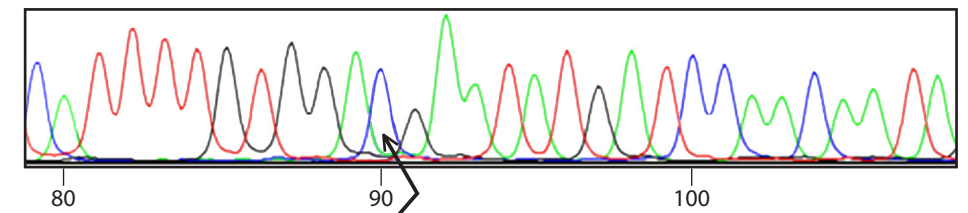
## Tumour cell DNA



A A T A A A T G T G A T T T G C C T T C T A G A A C A G T A

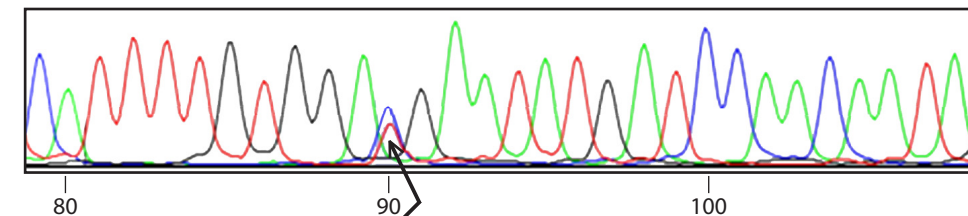
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



C A T T T T G T G G A G A A T A T G A T C C A A C A A T A

## Tumour cell DNA



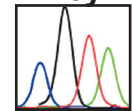
C A T T T T G T G G A C A A T A T G A T C C A A C A A T A

Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
30	GAC	GAT	Aspartic Acid (D)	Aspartic Acid (D)

# Can you spot a cancer mutation?

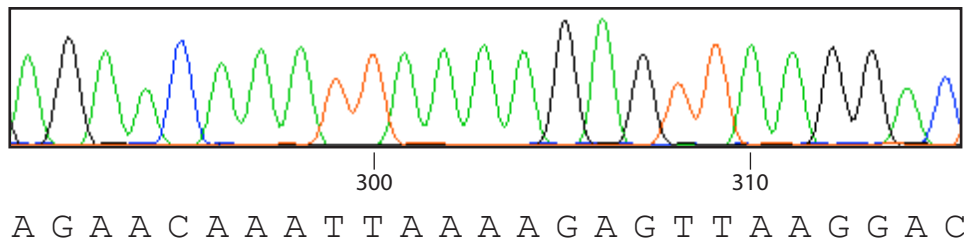
Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.

**Key**

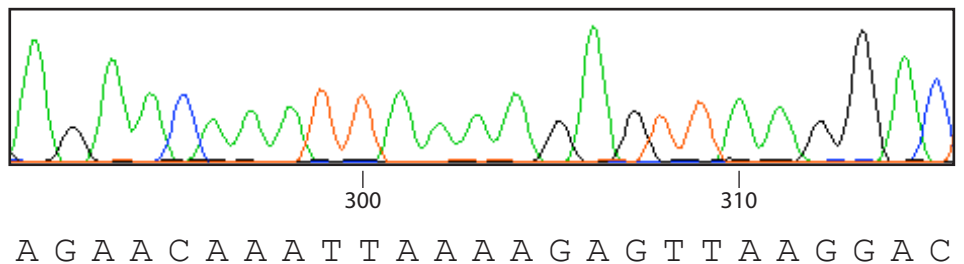


C - Cytosine  
G - Guanine  
T - Thymine  
A - Adenine

## Healthy cell DNA

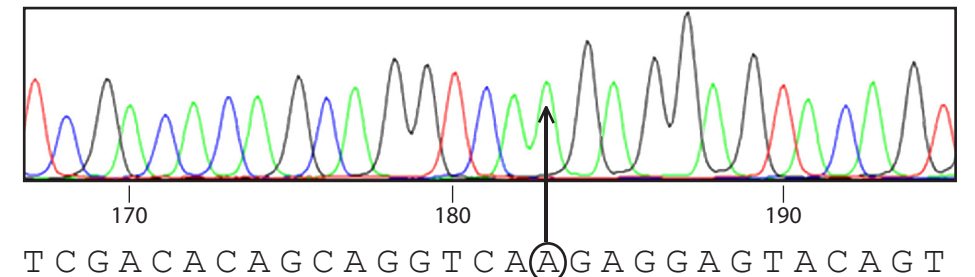


## Tumour cell DNA

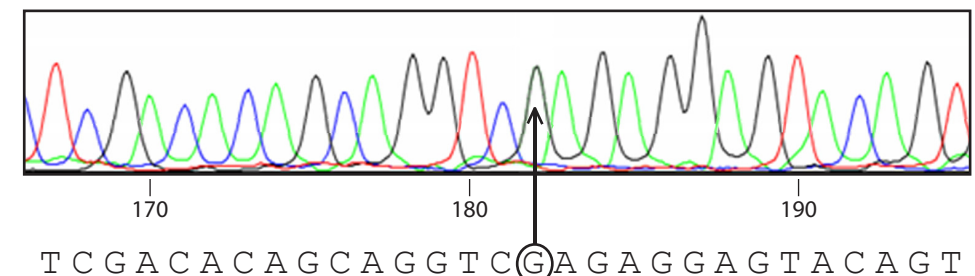


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



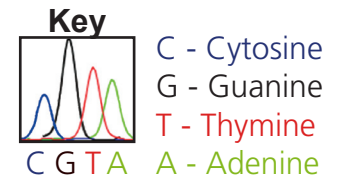
## Tumour cell DNA



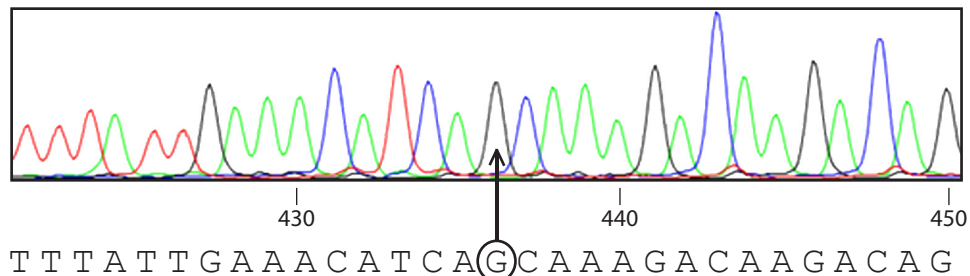
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
61	CAA	CGA	Glutamine (Q)	Arginine (R)

# Can you spot a cancer mutation?

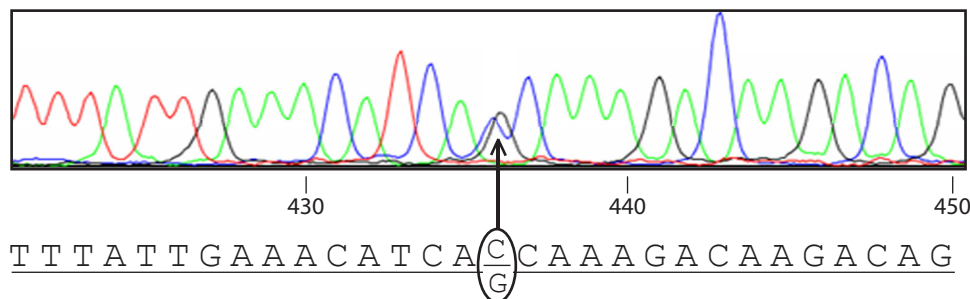
Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.



## Healthy cell DNA

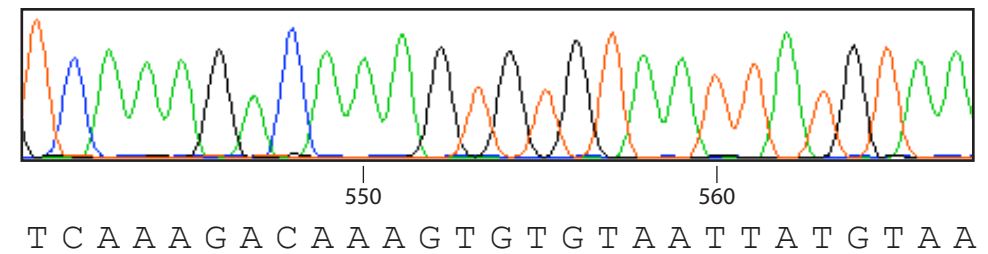


## Tumour cell DNA

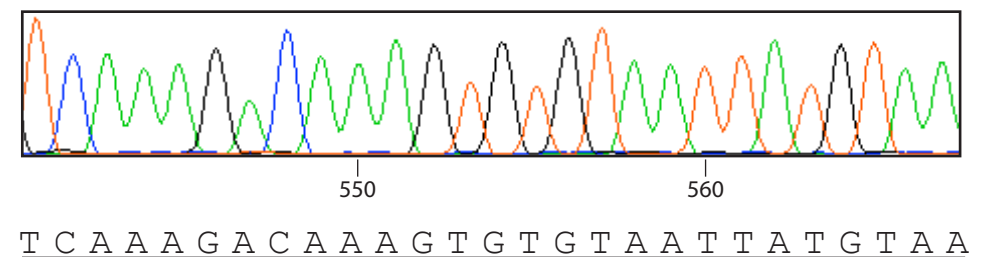


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
146	GCA	CCA	Alanine (A)	Proline (P)

## Healthy cell DNA



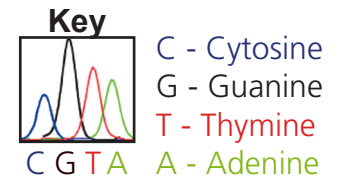
## Tumour cell DNA



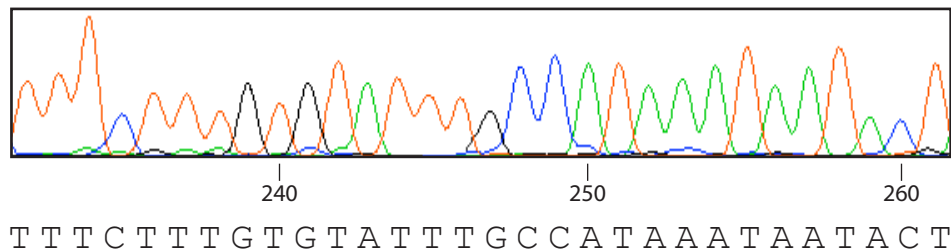
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

# Can you spot a cancer mutation?

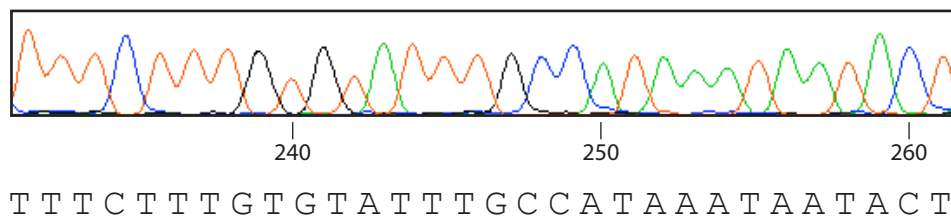
Below are traces of sequenced DNA displaying different regions of the *KRAS* gene. DNA sequence from a healthy cell is shown above that of a tumour cell. Using the key provided, write out the DNA sequence for each trace. Compare the healthy and tumour sequences. If you find a difference, circle the letter(s) that have changed and complete the table below using the banner and codon wheel provided.



## Healthy cell DNA

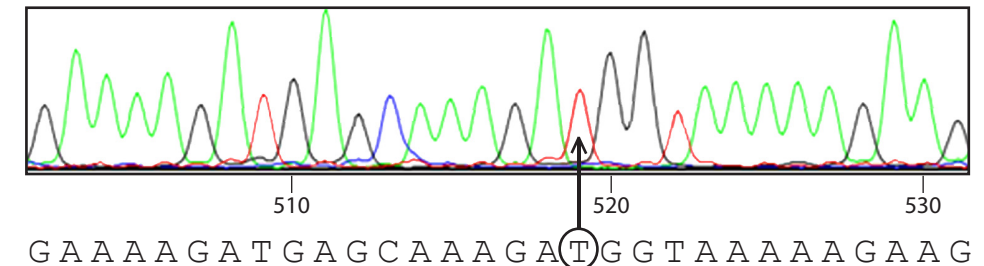


## Tumour cell DNA

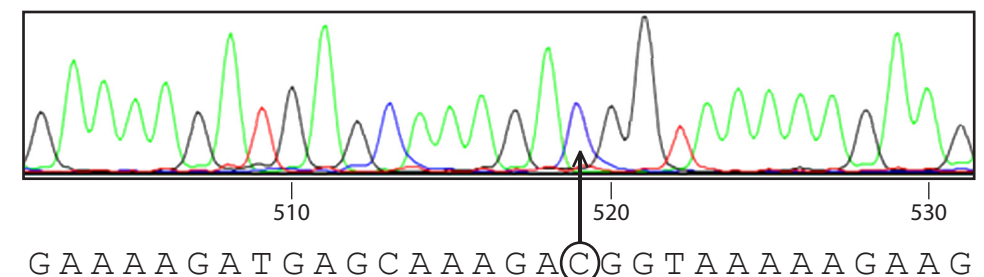


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



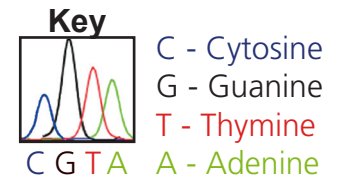
## Tumour cell DNA



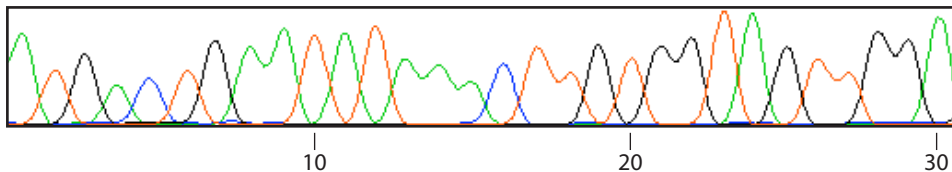
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
173	GAT	GAC	Aspartic acid (D)	Aspartic acid (D)

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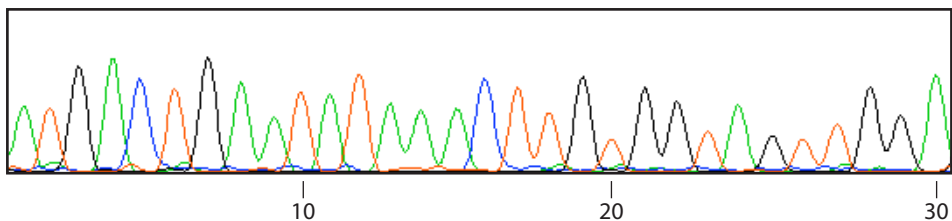


## Healthy cell DNA



A T G A C T G A A T A T A A A C T T G T G G T A G T T G G A

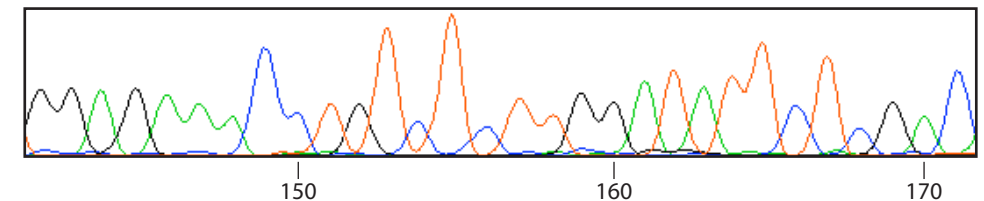
## Tumour cell DNA



A T G A C T G A A T A T A A A C T T G T G G T A G T T G G A

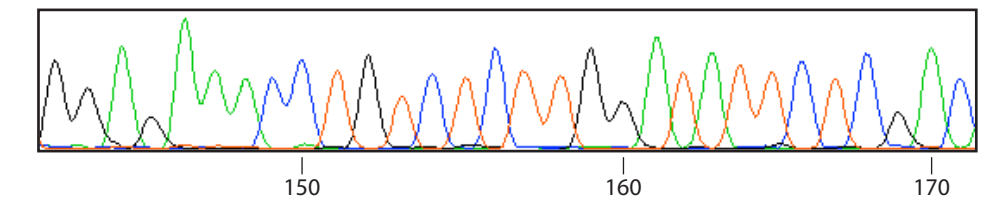
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



G G A G A A A C C T G T C T C T T G G A T A T T C T C G A C

## Tumour cell DNA

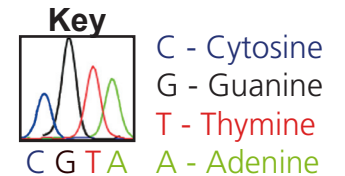


G G A G A A A C C T G T C T C T T G G A T A T T C T C G A C

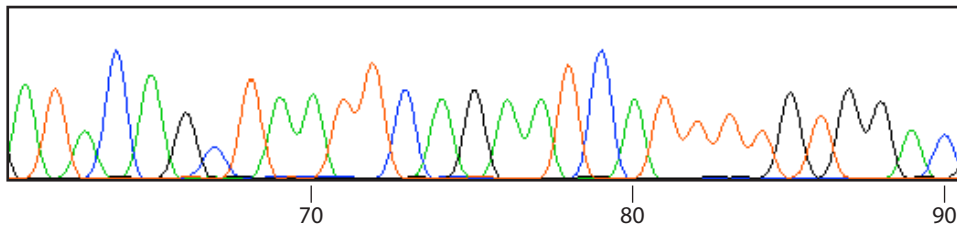
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

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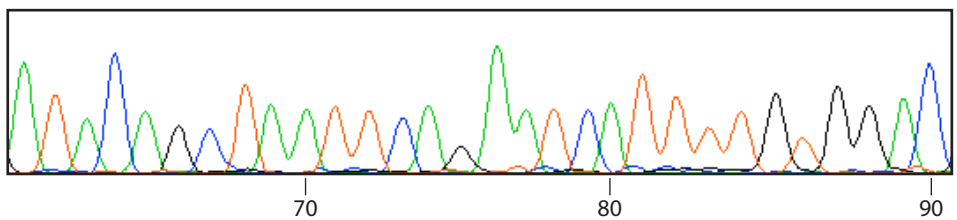


## Healthy cell DNA



A T A C A G C T A A T T C A G A A T C A T T T T G T G G A C

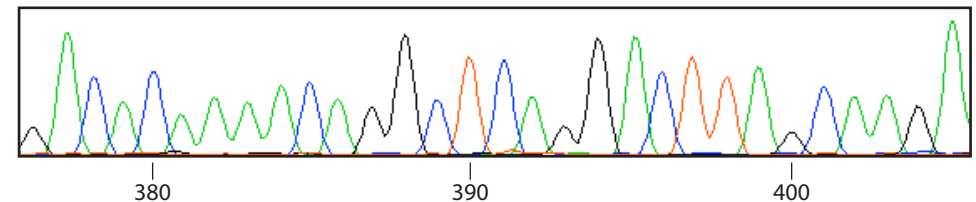
## Tumour cell DNA



A T A C A G C T A A T T C A G A A T C A T T T T G T G G A C

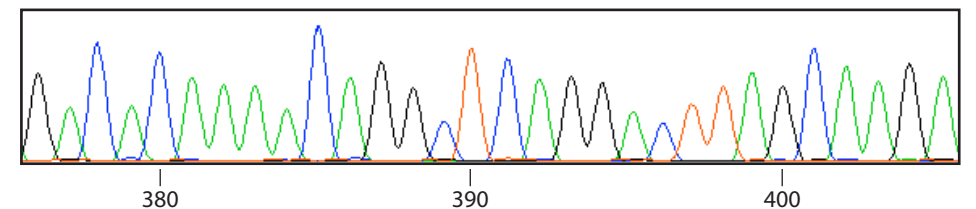
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



G A C A C A A A C A G G C T C A G G A C T T A G C A A G A

## Tumour cell DNA



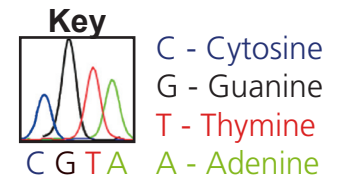
G A C A C A A A C A G G C T C A G G A C T T A G C A A G A

Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

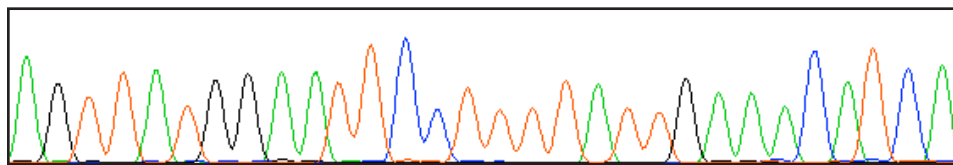


# Can you spot a cancer mutation?

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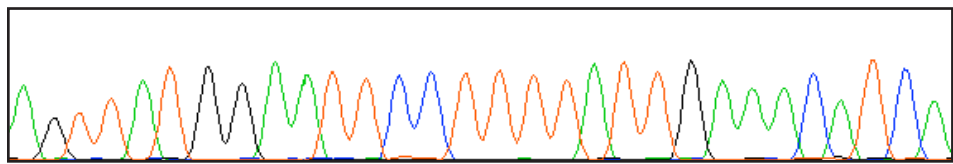


## Healthy cell DNA



410 420 430  
A G T T A T G G A A T T C C T T T T A T T G A A A C A T C A

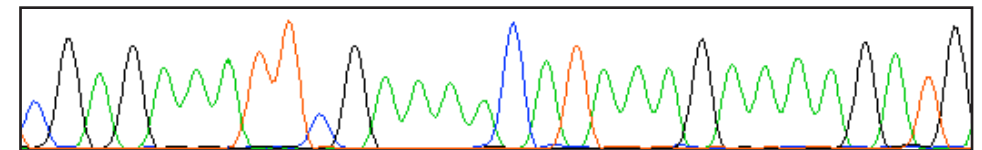
## Tumour cell DNA



410 420 430  
A G T T A T G G A A T T C C T T T T A T T G A A A C A T C A

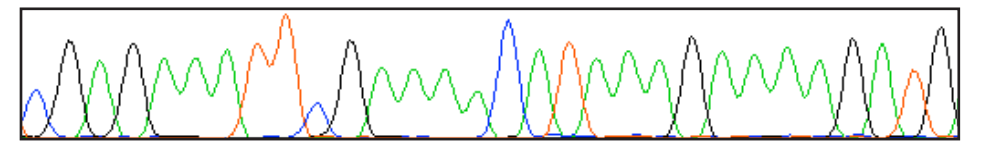
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



490 500 510  
C G A G A A A T T C G A A A C A T A A A G A A A A G A T G

## Tumour cell DNA



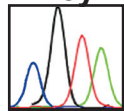
490 500 510  
C G A G A A A T T C G A A A C A T A A A G A A A A G A T G

Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

# Can you spot a cancer mutation?

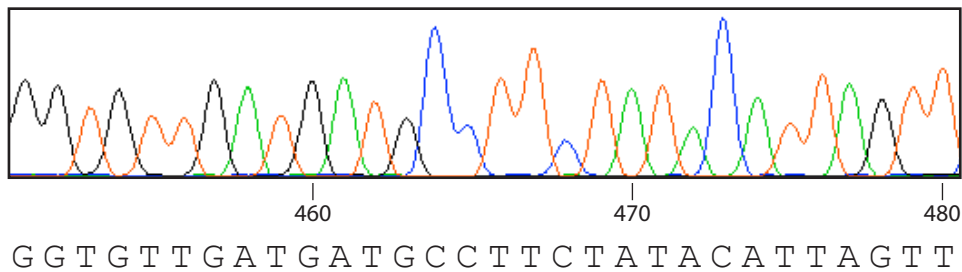
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**Key**

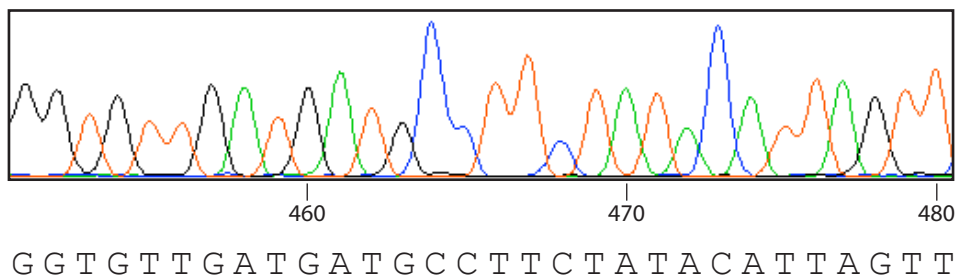


C - Cytosine  
G - Guanine  
T - Thymine  
A - Adenine

## Healthy cell DNA

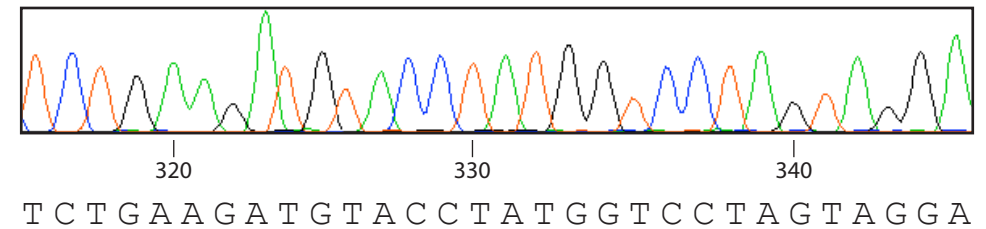


## Tumour cell DNA

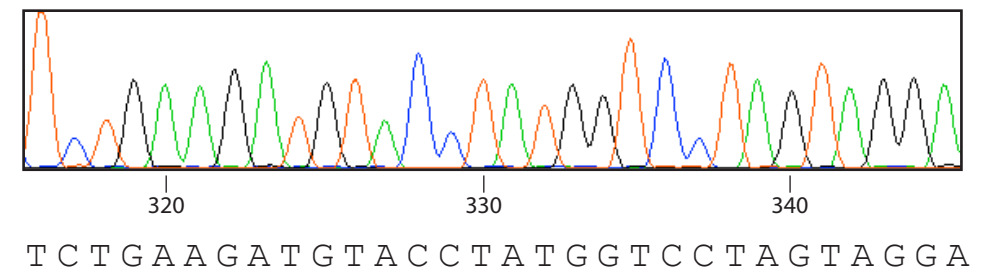


Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



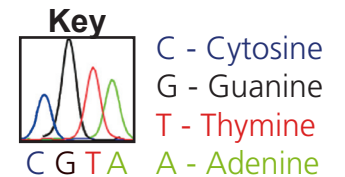
## Tumour cell DNA



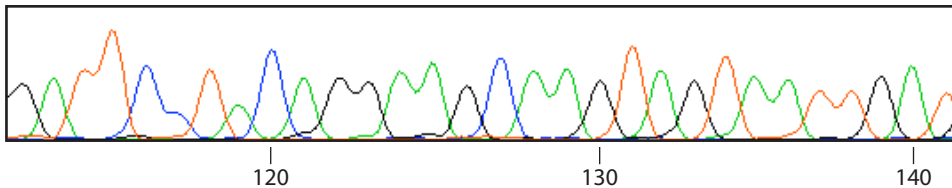
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

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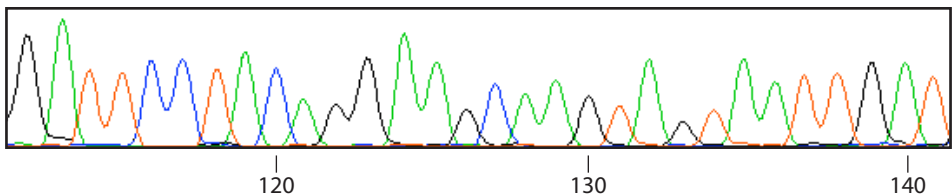


## Healthy cell DNA



GATTCCTACAGGAAGCAAGTAGTAATTGAT

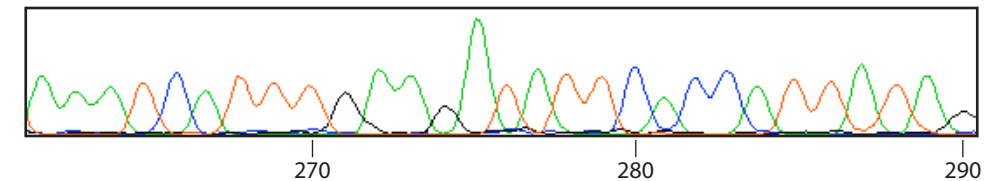
## Tumour cell DNA



GATTCCTACAGGAAGCAAGTAGTAATTGAT

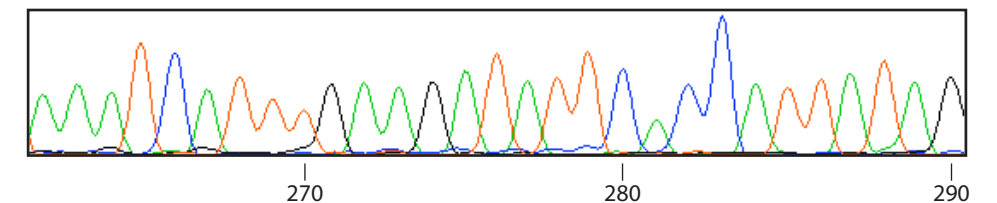
Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				

## Healthy cell DNA



AAATCATTGTGAAGATATTCACCATTTATAG

## Tumour cell DNA



AAATCATTGTGAAGATATTCACCATTTATAG

Amino Acid Number	Healthy DNA Sequence	Tumour DNA Sequence	Healthy Amino acid	Tumour Amino Acid
N/A				