



# Gene *E523*

| Plant ID | X or Y | Population    | Sites of SNPs or Indels |         |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------|--------|---------------|-------------------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|
|          |        |               | 4                       | 101     | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 6 | 7 | 7 |
|          |        |               | 3                       | 149     | 1 | 0 | 8 | 3 | 5 | 9 | 4 | 9 | 1 | 4 | 6 | 2 | 8 |
| 1        | X      | Sweden        | G                       | absent  | G | G | A | C | C | A | G | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 2        | X      | Greece        | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 3        | X      | Denmark       | G                       | absent  | G | G | A | C | C | A | C | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 4        | X      | Austria       | G                       | absent  | G | G | A | C | C | A | C | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 5        | X      | Norway        | G                       | absent  | G | G | A | C | C | A | G | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 6        | X      | Greece, Evrou | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 7        | X      | Italy         | G                       | absent  | G | G | A | C | C | A | C | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 8        | X      | Italy         | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 9        | X      | Estonia       | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 10       | X      | Portugal      | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 11       | X      | Netherlands   | G                       | absent  | G | G | A | C | C | A | G | G | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |
| 12       | X      | France        | G                       | absent  | G | G | A | C | G | A | C | G | C | C | T | A | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 13       | X      | UK            | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 14       | X      | Spain         | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 15       | X      | Spain         | G                       | absent  | G | G | A | C | C | A | C | — | T | C | T | C | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | C | G | C | T |
| 16       | X      | Germany       | G                       | Present | G | G | A | C | G | A | C | G | C | C | T | A | A |
|          | Y      |               | C                       | Present | A | A | T | T | G | G | C | T | T | T | G | C | T |

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The Y state is found in one X

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The Y state is found in 2 Xs

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Polymorphism exclusive to the Y

**Figure S2** Variants in the Y- and X-linked haplotypes of the *E559* (part A of the figure) and *E523* (part B of the figure) genes.