

Genetic diversity of the novel coronavirus SARS-CoV-2 (COVID-19) in Portugal

More information at <https://insaflu.insa.pt/covid19>



Situation Report

March 21st, 2023

The National Institute of Health Doutor Ricardo Jorge, I.P. (INSA) has analysed **45852** SARS-CoV-2 genome sequences so far.

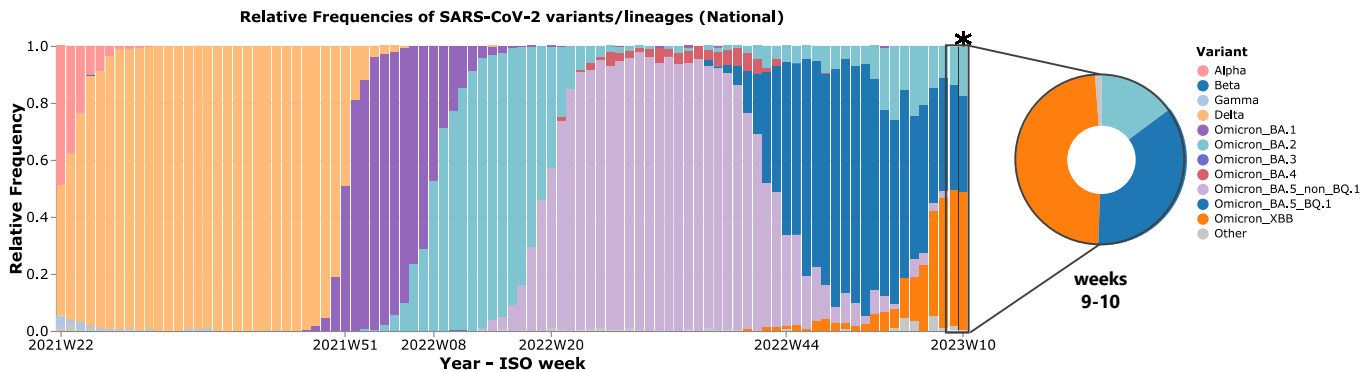


Figure 1: Evolution of the weekly relative frequency of the SARS-CoV-2 variants circulating in Portugal between ISO weeks 22 (31/05/21 - 06/06/21) and 10 (06/03/23 - 12/03/23). The frequencies presented for the last week under analysis (ISO week 10*) might change in the next report, given that some data from that period is still being processed. *This and other graphs can be explored interactively on the website.*

Main highlights

- **Lineage BA.5 of variant Omicron** (including its multiple sub-lineages) **was dominant in Portugal** between the weeks 19 of 2022 (09-15/05/22) and 7 of 2023 (13-19/02/23), where since week 44 of 2022, its intense circulation is mainly due to its **sub-lineage BQ.1 (and its descendants, in particular BQ.1.1)** (Figure 1 and Figure 2). A continuous decrease in frequency has been observed from week 52 of 2022 (26/12/22 - 01/01/23) onwards, presenting a **relative frequency of 35.8%** according to the most recent national sequencing survey, relative to the period of weeks 9 and 10 (27/02/23 - 12/03/23) (Figure 1).
- In 2022, **lineage BA.2 of variant Omicron was dominant in Portugal between weeks 8 (21-27/02/22) and 19 (09-15/05/22)**, maintaining a residual frequency during the period of BA.5 dominance. Nevertheless, a considerable increase in frequency has been observed since week 51 (19-25/12/22), mainly due to the circulation of its **lineage CH.1.1 (and its sub-lineages)** (Figure 2), showing a relative frequency of 14.8% between weeks 9 and 10 (27/02/23 - 12/03/23).
- Since week 1 of 2023, it is highlighted the increase in circulation of the **recombinant sub-lineage XBB (and its descendants)**, **with a relative frequency of 48.2%** in the period of weeks 9 and 10 (Figure 1). In particular, we underline the circulation in Portugal of its **XBB.1.5 sub-lineage (and its descendants)** since week 49 of 2022 (Figure 2).
- The sub-lineages with the highest relative frequency in Portugal (BQ.1, CH.1.1, XBB and their descendants) present constellations of mutations potentially associated with resistance to neutralizing antibodies. Thus, their higher transmissibility may be due to a higher immune evasion capacity.

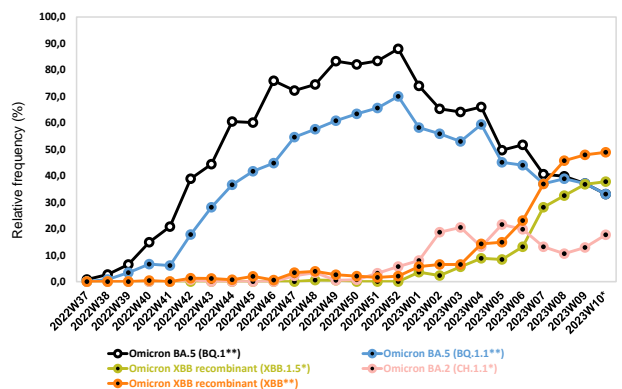
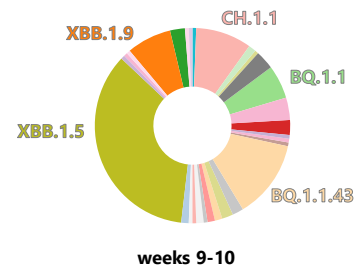


Figure 2: Evolution of the relative frequency of some sub-lineages of interest circulating in Portugal. The circular graph shows the distribution of the relative frequencies of SARS-CoV-2 sub-lineages in the period of ISO weeks 9 and 10 (27/02/23 - 12/03/23), **highlighting sub-lineages representing >4% of the sequences analysed in this period.** The evolution of BQ.1**, CH.1.1**, XBB** and XBB.1.5* relative frequencies during the last 26 weeks is shown in the line plot. It is expected that the frequencies presented for the last week under analysis (ISO week 10*) might change in the next report, given that some data from that period is still being processed. **the presented relative frequencies correspond to the sub-lineages and their descendants. *Other graphs can be explored interactively on the website.*

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Recommended citation

National Institute of Health (INSA) Doutor Ricardo Jorge. Genetic diversity of the novel coronavirus SARS-CoV-2 (COVID-19) in Portugal. Lisbon, Portugal INSA; 2022. Available at: <https://insaflu.insa.pt/covid19>

Useful links

<https://www.ecdc.europa.eu/en/covid-19/situation-updates/variants-dashboard>
<https://www.who.int/activities/tracking-sars-cov-2-variants>
https://cov-lineages.org/lineage_list.html
<https://outbreak.info/>
<https://www.gisaid.org/>