

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

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Situation Report

December 20th, 2022

The National Institute of Health Doutor Ricardo Jorge, I.P. (INSA) has analysed **44209** SARS-CoV-2 genome sequences so far.

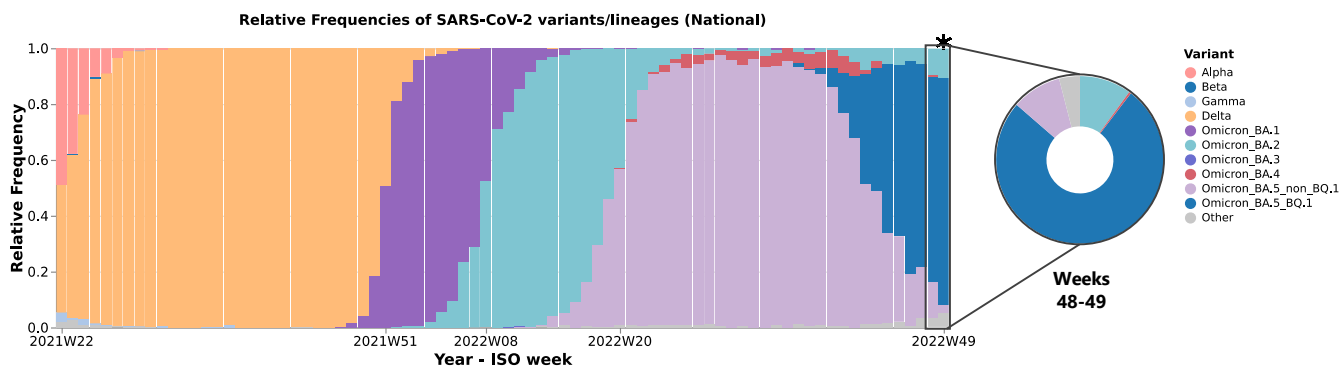


Figure 1: Evolution of the weekly relative frequency of the SARS-CoV-2 variants circulating in Portugal between ISO weeks 22 (31/05/21 - 06/06/21) and 49 (06/12/22 - 12/12/22). The frequencies presented for the last week under analysis (ISO week 49*) might change in the next report, given that some data from that period is still being processed. *This and other graphs can be explored interactively on the website.*

Main highlights

- **Lineage BA.5 of the variant Omicron** (including its multiple sub-lineages) **is dominant in Portugal** since week 19 (09/05/22 - 15/05/22) and presents a **relative frequency of 84.0%** according to the most recent national sequencing survey on week 49 (06/12/22 - 12/12/22) (**Figure 1**).
- **One sequence of lineage BA.4 of the variant Omicron** was detected in week 48, after not being detected since week 44.
- **Lineage BA.2 of the variant Omicron** was dominant in Portugal between weeks 8 (21/02/22 - 27/02/22) and 19 (09/05/22 - 15/05/22). Since then, its relative frequency is residual, representing **<6% of the sequences up to week 47**. **Between weeks 48 and 49**, it represented 10% of the analyzed sequences, mainly due to **lineage BN.1 and its sub-lineages** (relative frequencies of 4.6% and 6.7% in this period, respectively)
- On behalf of the continuous monitoring of the introduction and circulation of (new) SARS-CoV-2 (sub-)lineages in Portugal, **we have been observing the emergence of sub-lineages of interest**, with novel constellations of mutations potentially associated with resistance to neutralizing antibodies. Among these, we highlight the **sub-lineages of BA.2** (e.g., BN.1) and **BA.5** (e.g., BF.7 and BQ.1), some of them showing considerable increase of circulation in some countries, particularly in Europe. In Portugal, it is highlighted the **increase of the relative frequencies of BQ.1** (and its sub-lineages, in particular BQ.1.1), which is dominant since **week 44** (**Figure 2**). To date, 27 sequences of the recombinant sub-lineage XBB have been detected in Portugal. XBB has been a focus of interest due to its immune evasion capacity.

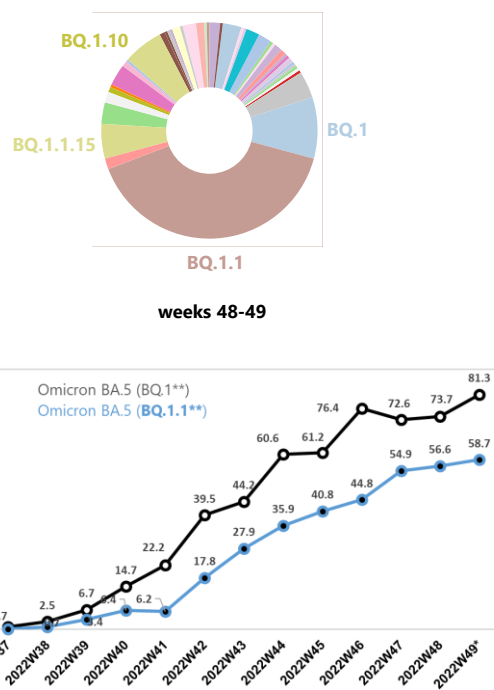


Figure 2: Evolution of the relative frequency of sub-lineage BQ.1 and its descendants BQ.1.1 in Portugal. The circular graph shows the distribution of the relative frequencies of SARS-CoV-2 sub-lineages in the period of ISO weeks 48 and 49 (29/11/22 - 12/12/22), highlighting sub-lineages representing >5% of the sequences analysed in this period. The evolution of BQ.1** and BQ.1.1** relative frequencies during the last 13 weeks is shown in the line plot. It is expected that the frequencies presented for the last week under analysis (ISO week 49*) 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.*

Autorship

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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/>