

Introduction

Research in life science generates massive and complex data that can be extracted and analyzed by different approaches based on *ab-initio* modelling, heuristic methods, machine learning techniques, or hybrid models. The Covid pandemic boosted the use of oligonucleotides (ONs) as therapeutic agents for vaccine development generating significant advances in the life science sector.

Objective

This study aims to trace the production of scientific publications about the computer-aided design of ONs with the ability to form triplexes (TFOs) based on publications in the Scopus database from 1980 to 2023 using VOSviewer software.

Methodology

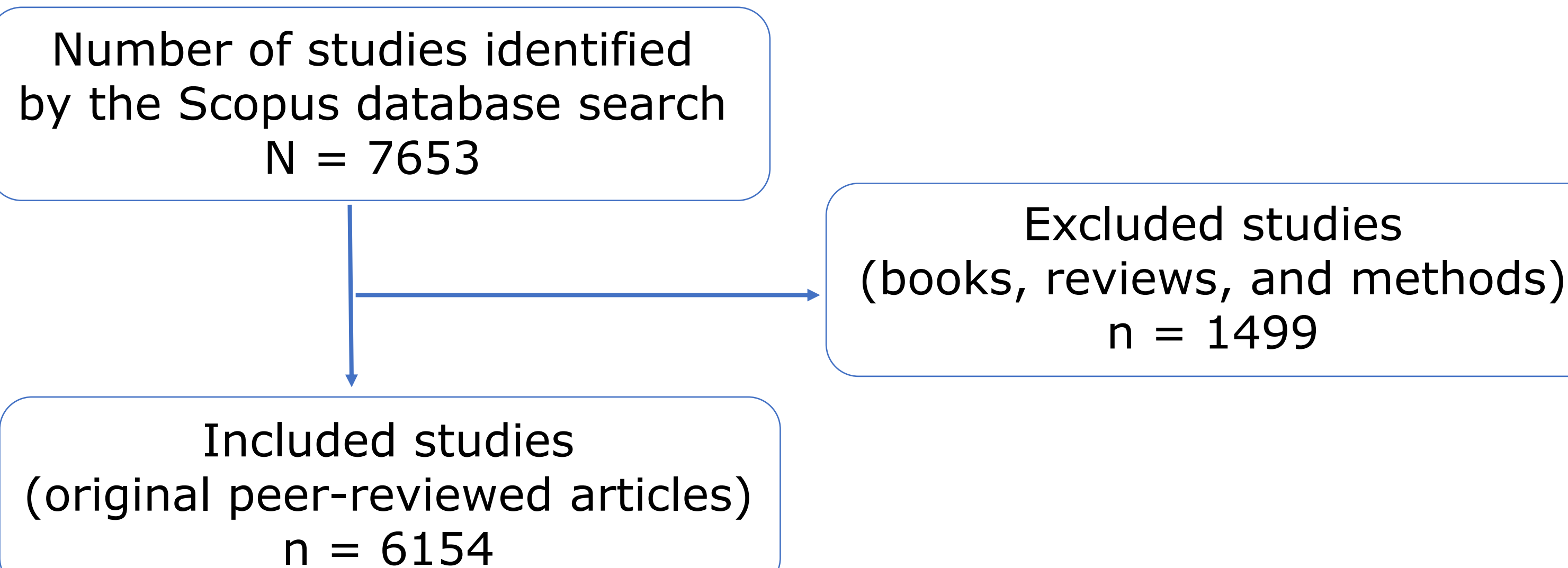


Fig 1. Flowchart of the studies used in the analysis.

Results

Peer-reviewed articles were analyzed using VOSviewer software, which revealed 923 terms with 148106 total links distributed in two clusters i) Target genome sequence and ii) Computational tools. The bibliometric analysis showed that the molecular dynamic simulations (MDS) term had 272 occurrences. VOSviewer visualizations revealed that MDS is a computational technique widely utilized in the computer-aided design of TFOs. Moreover, the visualizations showed on-trend topics in co-occurrence with emerging trending terms such as cancer, gene, transcription, triplex target site, triplex formation, and *silico* prediction. This co-occurrence indicates that the topics are studied together and can often have strong correlations in the computer-aided design of ONs.

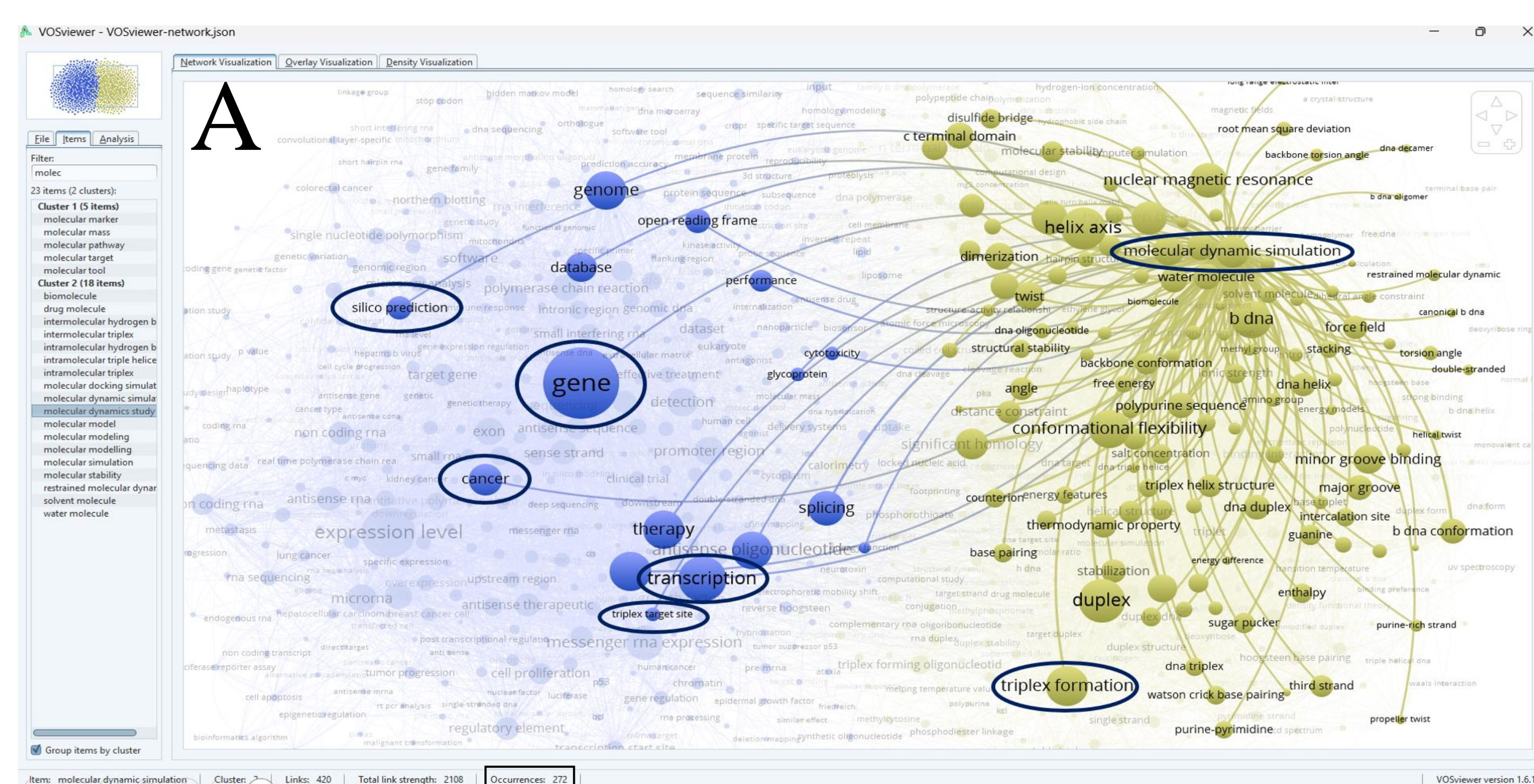


Fig 2. Line of association of terms from publications on computer-aided design research of TFOs.

A) Two clusters, i) Target genome sequence, and ii) Computational tools; **B)** QR code from data analysis in the VOSviewer software.

Conclusion

This study demonstrated the high volume of data produced by life science research. Consequently, using VOSviewer in the bibliometric analysis effectively tracked a relevant number of original articles on computer-aided design of oligonucleotides over the past 43 years.