



Comprehensive Protein Allergen Resource

COMPREHENSIVE PROTEIN ALLERGEN RESOURCE

Program Overview – October 2017

ABOUT HESI

HESI, the Health and Environmental Sciences Institute, is a non-profit, global scientific organization dedicated to developing science for a safer, more sustainable world.

HESI's mission is to collaboratively identify and help to resolve global health and environmental challenges through engagement of scientists from academia, government, industry, NGOs, and other strategic partners.



www.hesiglobal.org

OVERVIEW

The COMPARE database is a transparent resource for identification of protein sequences that are known or putative allergens. The COMPARE database meets the needs for allergy safety assessment via an annual updating process that 1) captures new listings of allergen sequences, 2) filters out non-allergen sequences, 3) identifies published literature linked to the identified potential allergen sequences, and 4) verifies that the newly identified sequences have clinical, published evidence of allergenicity based on standardized criteria.

PROGRAM STRUCTURE

The COMPARE database is a collaborative HESI program that combines programmatic support from the Joint Institute for Food Safety and Nutrition (JIFSAN) - www.jifsan.umd.edu at the University of Maryland - with financial support from private sector partners. Additional in-kind support from multiple academic and government partners is engaged throughout the process. A public-private HESI collaborative team publicly documents all database design and search algorithm decisions. An exclusively public-sector expert panel reviews the output from a high-throughput bioinformatic pipeline against peer-reviewed publications. The experts from the panel then select sequences for inclusion in the database and document their rationale for inclusion.

TIMELINE

A steering team was convened in early 2016 to ensure timelines, process, and resources are aligned. Sequence searching and filtering was conducted in the second quarter of 2016 and selected candidate proteins were peer-reviewed in the fourth quarter before final assembly and release. The first iteration of the COMPARE database was released to the public in February, 2017, in the website www.comparedatabase.org and it will be updated on an annual basis.

The COMPARE database will serve as a publicly accessible, transparent, rigorous, and reliable resource for allergen identification and comparative analyses.

Contact Us

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Developing COMPARE

Q: How are sequences for the database identified?

A: Potential sequences for inclusion in the COMPARE database are identified via bioinformatic and keyword filtering approaches using a transparent, documented filtering algorithm. The criteria for this filtering process are publicly available in the database website: www.comparedatabase.org. Once sequences are identified, a panel of academic peer reviewers considers these sequences and

their associated published literature to determine whether they should be included in the next version of the database. Criteria for inclusion or exclusion were developed by the independent panel and published online.

Q: How is the development process managed?

A: Professional scientific staff at HESI provide management oversight for the sequence search (conducted by informatics experts), academic peer review panel, and public release of the final database. A public-private steering team convened by HESI provides input into matters of process but does not have any influence on decisions regarding sequence inclusion/exclusion in the database.

Q: Why is HESI establishing COMPARE at this time?

A: As genomic sequencing technology has become widespread, the number of sequences to be filtered has grown exponentially. The COMPARE process accommodates this growth by implementing a cutting-edge and high-throughput bioinformatic pipeline to identify a meaningful subset of sequences for scientific review by a diverse group of recognized allergy experts. The COMPARE process also meets contemporary needs for well-documented allergen database population criteria.

Q: How can I help support this effort?

A: The COMPARE database relies on the contribution of scientific expertise as well as in-kind and direct financial support from both public sector and private sector scientific organizations to develop this public resource. If you would like to learn more about how you or your organization can contribute, please contact us at the address listed above.

