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Control Selection and Statistical Analyses in Immunological Research

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Abstract

Including different groups of samples in addition to the control and experimental groups is often required for a valid research design. Practically, those groups of samples also would serve as one or another kind of control measure for the data analysis and subsequent interpretation. This chapter explains the fundamentals of using different groups of appropriate controls that might vary in terms of types and nature, and according to the purpose or objectives of a given research design involving immunological techniques. It highlights the fundamentals of choosing appropriate statistical tools that can be used for data analysis and interpretation of results. To describe the types, nature and purpose of appropriate controls, the chapter presents a simple research design based on immunohistochemical staining. To support claims that particular treatments provide particular solutions, statistical tests are typically carried out to define the statistical significance of the experimental outcomes, that is, the data collected. © 2023 John Wiley & Sons Ltd. All rights reserved.

Author Keywords

Control measure; Data analysis; Immunohistochemical staining; Immunological techniques; Statistical tools

References

- Aronson, J.K.
Biomarkers and surrogate endpoints
(2005) *Br. J. Clin. Pharmacol.* 59 (5), pp. 491-494.
- Blainey, P., Krzywinski, M., Altman, N.
Replication
(2014) *Nat. Methods*, 11 (9), pp. 879-880.
- Crowther, J.R.
ELISA: theory and practice
(1995) *Methods Mol. Biol.* 42, pp. 1-218.
- de la Rica, R., Stevens, M.M.
Plasmonic ELISA for the ultrasensitive detection of disease biomarkers with the naked eye
(2012) *Nat. Nanotechnol.* 7 (12), pp. 821-824.
- Elgert, K.D.
(2009) *Immunology: Understanding the Immune System*, Hoboken: John Wiley & Sons
- Leng, S.X., McElhaney, J.E., Walston, J.D., Xie, D., Fedarko, N.S., Kuchel, G.A.
ELISA and multiplex technologies for cytokine measurement in inflammation and aging research
(2008) *J. Geront. A Biol. Sci. Med. Sci.* 63 (8), pp. 879-884.
- Lequin, R.M.
Enzyme immunoassay (EIA)/enzyme-linked immunosorbent assay (ELISA)
(2005) *Clin. Chem.* 51 (12), pp. 2415-2418.

- Msagati, T.A.
(2017) *Food Forensics and Toxicology*,
Hoboken: John Wiley & Sons
- Sonntag, O.
Introduction to dry chemistry
(1993) *Dry Chemistry: Analysis with Carrier-Bound Reagents*,
(ed. P.C. van der Vliet, P.C.). Philadelphia: Elsevier
- Van Weemen, B.K., Schuurs, A.H.W.M.
Immunoassay using antigen-enzyme conjugates
(1971) *FEBS Lett*, 15 (3), pp. 232-236.
- Wide, L., Porath, J.
Radioimmunoassay of proteins with the use of Sephadex-coupled antibodies
(1966) *Biochim. Biophys. Acta*, 130 (1), pp. 257-260.
- Yalow, R.S., Berson, S.A.
Immunoassay of endogenous plasma insulin in man
(1960) *J. Clin. Invest*, 39 (7), pp. 1157-1175.

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