

## Contents

### Special issue: Indirect Reference Limits

Issue Editor: Rainer Haeckel

#### Editorial

Rainer Haeckel

**Indirect approaches to estimate reference intervals — 31**

#### Reviews

Rainer Haeckel, Werner Wosniok and Thomas Streichert  
**Review of potentials and limitations of indirect approaches for estimating reference limits/intervals of quantitative procedures in laboratory medicine — 35**

Kenneth A. Sikaris

**Separating disease and health for indirect reference intervals — 55**

#### Opinion Papers

Gorkem Sezgin, Tze Ping Loh and Corey Markus  
**Functional reference limits: a case study of serum ferritin — 69**

Mary Kathryn Bohn and Khosrow Adeli

**Application of the TML method to big data analytics and reference interval harmonization — 79**

Rainer Haeckel, Werner Wosniok, Antje Torge and Ralf Junker  
**Reference limits of high-sensitive cardiac troponin T indirectly estimated by a new approach applying data mining. A special example for measurands with a relatively high percentage of values at or below the detection limit — 87**

Rainer Haeckel, Werner Wosniok, Antje Torge, Ralf Junker, Alexander Bertram, Alexander Krebs, Mustafa Özcürümez, Matthias Orth and Thomas Streichert

**Age and sex dependent reference intervals for random plasma/serum glucose concentrations related to different sampling devices and determined by an indirect procedure with data mining — 95**

#### Original Articles

Farhad Arzideh, Mustafa Özcürümez, Eike Albers, Rainer Haeckel and Thomas Streichert

**Indirect estimation of reference intervals using first or last results and results from patients without repeated measurements — 103**

Mustafa Özcürümez, Farhad Arzideh, Antje Torge, Anja Figge, Rainer Haeckel and Thomas Streichert

**The influence of sampling time on indirect reference limits, decision limits, and the estimation of biological variation of random plasma glucose concentrations — 111**

#### Short Communications

Antje Torge, Rainer Haeckel, Mustafa Özcürümez, Alexander Krebs and Ralf Junker

**Diurnal variation of leukocyte counts affects the indirect estimation of reference intervals — 121**

Wolfgang Hermann, Lorenz Risch, Chris Grebhardt, Urs E. Nydegger, Benjamin Sakem, Mauro Imperiali, Harald Renz and Martin Risch

**Reference intervals for platelet indices in seniors and frequency of abnormal results in a population-based setting: a comparison between directly and indirectly estimated reference intervals — 125**

Britta Amodeo, Aline Schindler, Ulrike Schacht and Hans Günther Wahl

**Calculation of indirect reference intervals of plasma lipase activity of adults from existing laboratory data based on the Reference Limit Estimator integrated in the OPUS::L information system — 131**