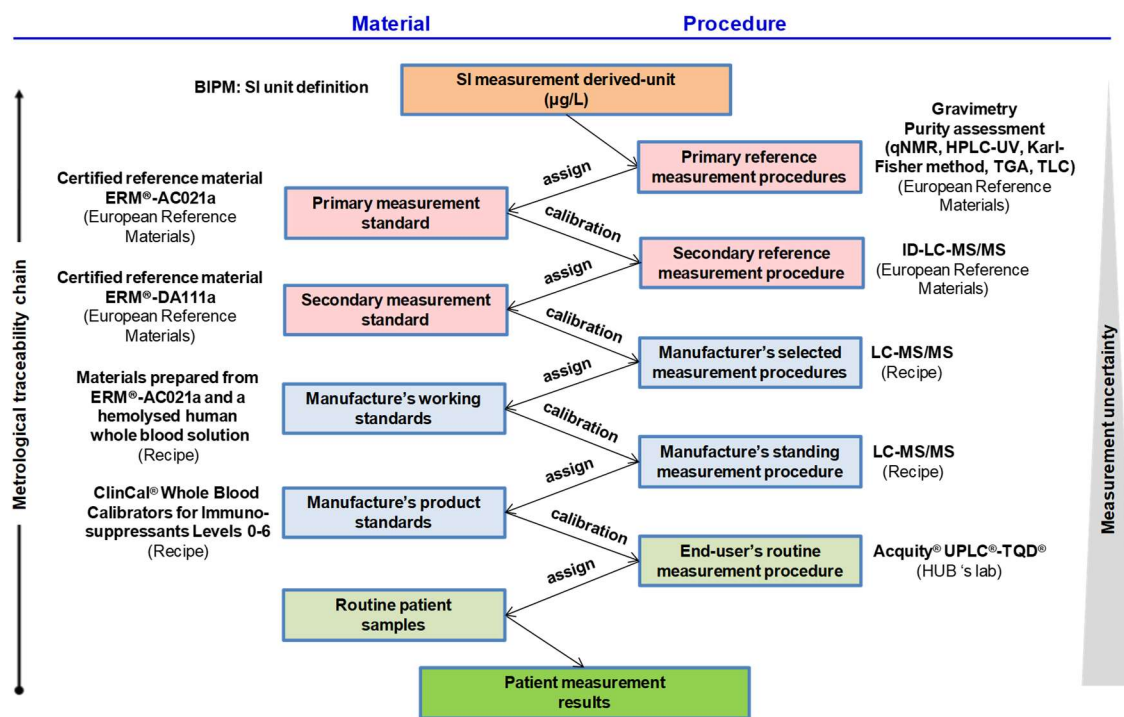
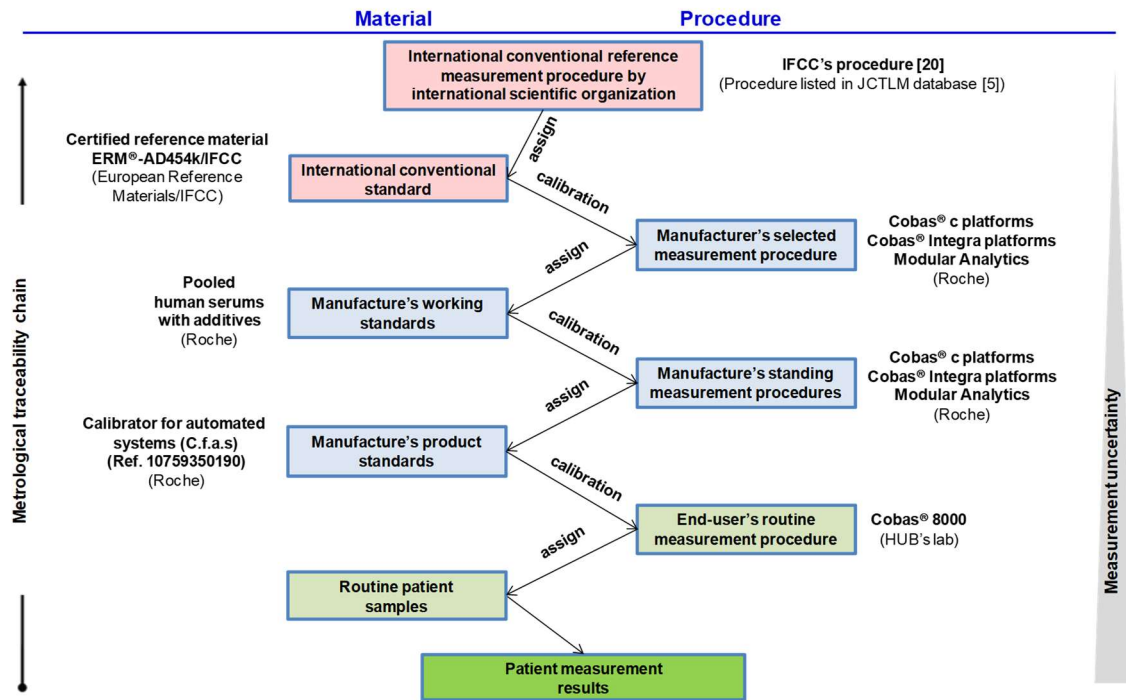


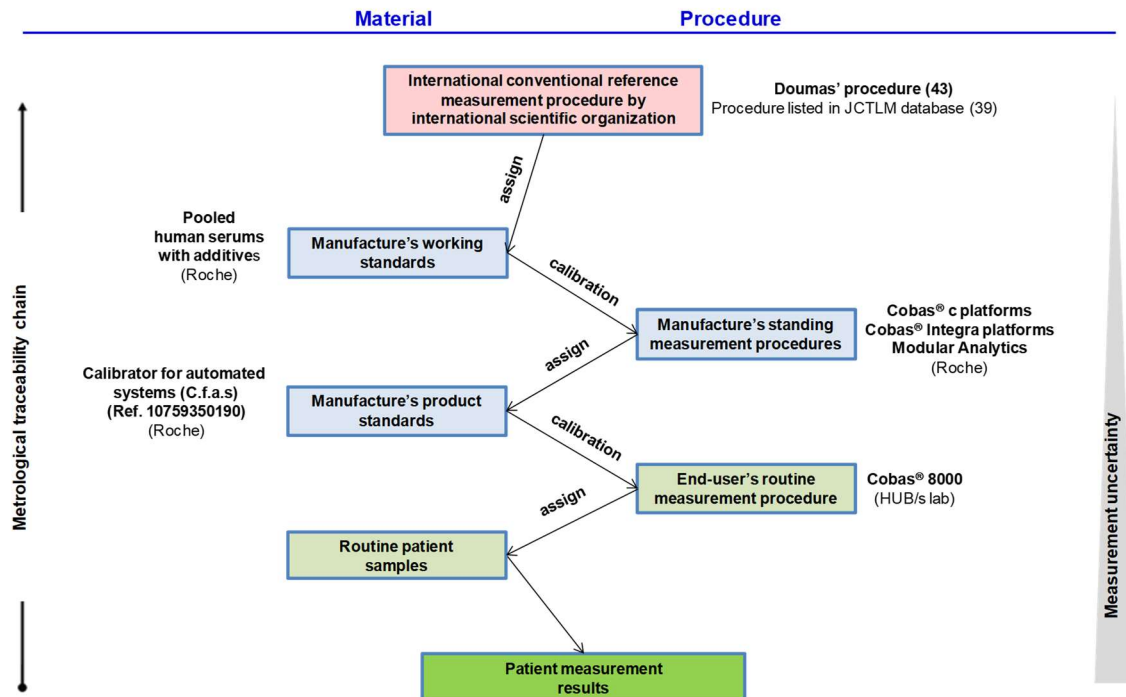
## Supplementary Material 5. Schemes of metrological traceability chain and calibration hierarchy for different biological quantities



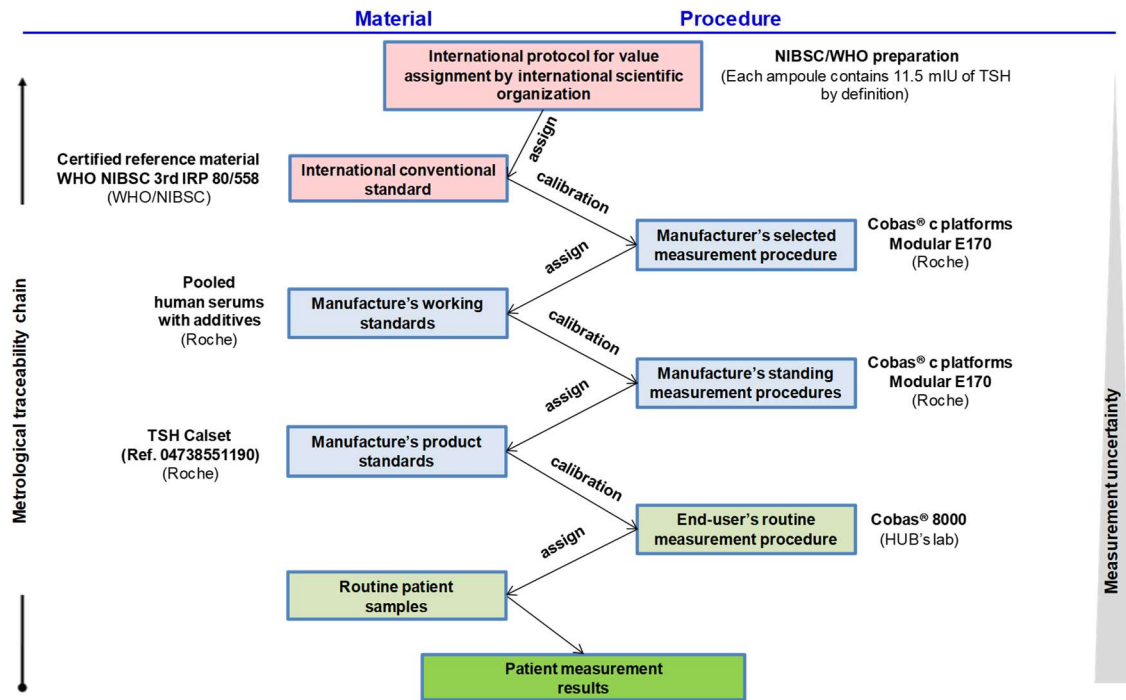
**Figure 1.** Mass concentration of sirolimus in blood. The red, blue and green boxes indicate that the responsibility for ensuring the calibration hierarchy lies with metrology institutes and reference laboratories, manufacturers of calibration materials and reagent equipment (the *in vitro* diagnostic industry), and clinical laboratories, respectively. BIPM - Bureau International des Poids et Mesures. qNMR - quantitative  $^1\text{H}$  nuclear magnetic resonance. HPLC-UV - high-performance liquid chromatography with ultraviolet detection. TGA - thermogravimetric analysis. TLC - thin-layer chromatography. ID-LC-MS/MS - isotope dilution-liquid chromatography-tandem mass spectrometry. LC-MS/MS - liquid chromatography-tandem mass spectrometry. HUB's lab - Hospital Universitari de Bellvitge Laboratori Clínic Department.



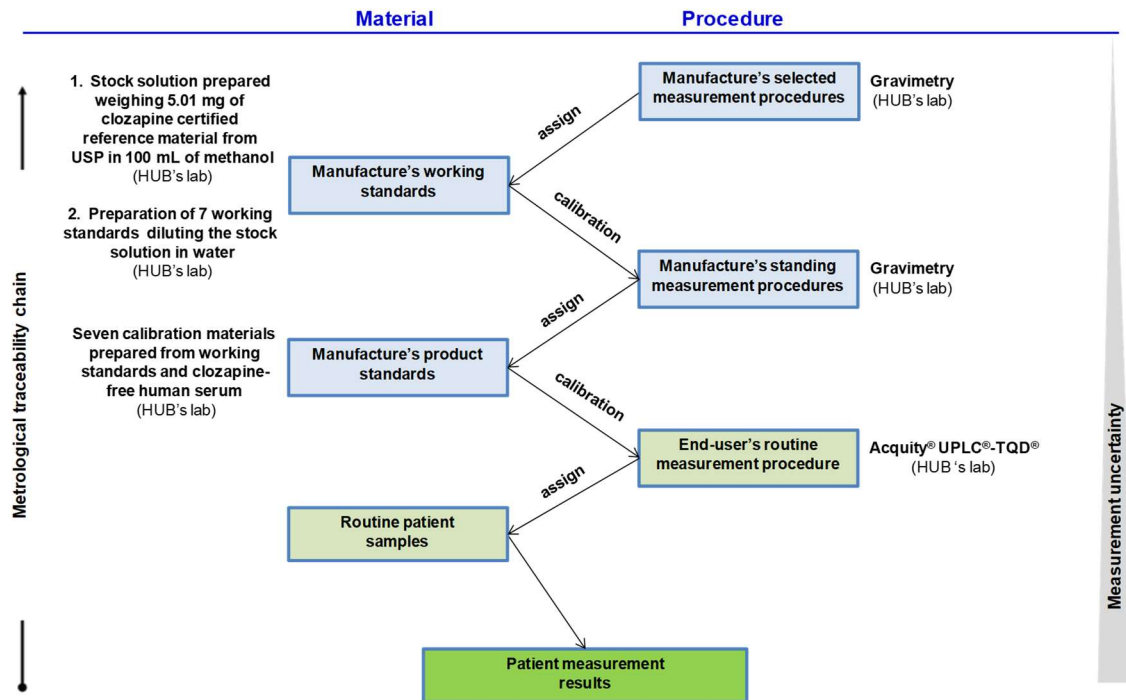
**Figure 2.** Catalytic concentration of alanine aminotransferase in serum. The red, blue and green boxes indicate that the responsibility for ensuring the calibration hierarchy lies with metrology institutes and reference laboratories, manufacturers of calibration materials and reagent equipment (the *in vitro* diagnostic industry), and clinical laboratories, respectively. IFCC - International Federation of Clinical Chemistry and Laboratory Medicine. JCTLM - Joint Committee for Traceability in Laboratory Medicine. HUB's lab - Hospital Universitari de Bellvitge Laboratori Clínic Department.



**Figure 3.** Substance concentration of bilirubin in serum. The red, blue and green boxes indicate that the responsibility for ensuring the calibration hierarchy lies with metrology institutes and reference laboratories, manufacturers of calibration materials and reagent equipment (the *in vitro* diagnostic industry), and clinical laboratories, respectively. JCTLM - Joint Committee for Traceability in Laboratory Medicine. HUB's lab - Hospital Universitari de Bellvitge Laboratori Clínic Department.



**Figure 4.** Arbitrary substance concentration of thyrotropin in serum. The red, blue and green boxes indicate that the responsibility for ensuring the calibration hierarchy lies with metrology institutes and reference laboratories, manufacturers of calibration materials and reagent equipment (the *in vitro* diagnostic industry), and clinical laboratories, respectively. NIBSC - National Institute for Biological Standards and Control. WHO - World Health Organization. IRP - International Reference Preparation. HUB's lab - Hospital Universitari de Bellvitge Laboratori Clínic Department.



**Figure 5.** Concentration of clozapine in serum results. The blue and green boxes indicate that the responsibility for ensuring the calibration hierarchy lies with manufacturers of calibration materials and reagent equipment (the *in vitro* diagnostic industry) and clinical laboratories, respectively. HUB's lab - Hospital Universitari de Bellvitge Laboratori Clínic Department.