**Appendix Table E3. Studies reporting results on the reliability of platelet reactivity assays with unclear study designs**

| **Author****Year****Country****PMID** | **Assays evaluated****(agonist)****[brand name, manufacturer]** | **Results** |
| --- | --- | --- |
| Cuisset2009{Cuisset, 2009 113 /id}France19761935 | LTA (ADP 10 μmol/L) [PAP4, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of aggregation (PAP4) = 6.5% |
| Cecchi2009{Cecchi, 2009 114 /id}Italy19733708 | LTA (ADP 10 μmol/L)[APACT 4, Helena Laboratories, Milan, Italy] | Mean COV for ADP-induced aggregation = 6.8% |
| Paniccia2009{Paniccia, 2009 127 /id}Italy19461090 | LTA(ADP, 10 μmol/L)[APACT-4004 aggregometer, LABiTec, Ahrensburg, Germany]Impedance aggregometry(ADP, 10 μmol/L)[Multiplate analyzer, Dynabyte, Munich, Germany] | Mean COV for LTA (50 measurements) = 6.8% (ADP as agonist)Mean COV (5 repeat measurements in an unspecified number of patients) = 6.2% (ADP as agonist) |
| Cuisset2009{Cuisset, 2009 131 /id}France18990434 | LTA (ADP 10 μmol/L) [PAP4, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Frere2008{Frere, 2008 176 /id}France18394438 | LTA (ADP 10 μmol/L) [PAP4, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Bonello2008{Bonello, 2008 177 /id}France18387444 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[Platelet VASP kit, Diagnostica Stago, Asnieres, France]; using flow cytometry [EPICS XL cytometer, Beckman Coulter Inc., Fullerton, California] | Intra-assay COV was <5%; interassay coefficient of variation was <8% |
| Mani2008{Mani, 2008 183 /id}Germany18223467 | LTA(ADP 2μmol/L)[Behring Coagulation Timer, BCT, Dade Behring, Dudingen, Switzerland] | Within-subject variation was 3.3% |
| Frere2007{Frere, 2007 193 /id}France17938809 | LTA (ADP 10 μM) [PAP4 aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Cuisset2007{Cuisset, 2007 196 /id}France17337040 | LTA (ADP 10 μmol/L) [PAP4 Aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Bonello2007{Bonello, 2007 199 /id}France17488353 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[Platelet VASP kit, Biocytex, Marseille, France]; using flow cytometry [Coulter EpicsXL cytometer, no additional information reported] | Intra-assay COV <5%. |
| Cuisset2007{Cuisset, 2007 203 /id}France17264949 | LTA (ADP 10 μM) [PAP4 Aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Cuisset2006{Cuisset, 2006 212 /id}France16371119 | LTA (ADP 10 μmol/L) [PAP4 Aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Wang2011{Wang, 2011 16 /id}China21538380 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[Platelet VASP kit, Becton Dickinson, Franklin Lakes, NJ]; using flow cytometry [Coulter Epics XL cytometer, FACSCalibur, Becton Dickinson, Franklin Lakes, NJ] | Intra-assay COV < 5%Inter-assay COV < 8% |
| Gori2008{Gori, 2008 151 /id}Italy19132241 | LTA(ADP, 10 μmol/L)[APACT-4, Helena Laboratories, Italy]High shear platelet function(collagen/ADP)[PFA-100, Dade-Behring, Marburg, Germany] | COV for LTA (ADP) = 6.8%COV for PFA-100 (collagen/ADP) = 9.3% |
| Neubauer2011{Neubauer, 2011 28 /id}Germany21226927 | Impedance aggregometry(ADP 5μM)[Whole Blood Aggregometry, Model 590, Chrono-log Corporation, Havertown, PA] | “Results were reproducible with a variability <10%” |
| Armero2010{Armero, 2010 59 /id}France20670107 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[Platelet VASP kit, Diagnostica Stago, Asnieres, France]; using flow cytometry [Coulter Epics XL cytometer, Beckman Coulter, Inc., Fullerton, CA] | Intra-assay COV <5%. |
| Neubauer2010{Neubauer, 2010 71 /id}Germany20410834 | Impedance aggregometry(ADP 5μmol/L)[Model 590, Chrono-log Corporation, Havertown, PA] | Results were “reproducible with a variability <10%” |
| Madsen2010{Madsen, 2010 79 /id}Canada20224050 | LTA(ADP, 5 μM)[Chrono-Log Lumi Aggregometer, model 810; Chrono-Log Corporation, no additional details provided] | Duplicate measurements were performed only for LTA (other tests were assessed in the study)While patients were on clopidogrel (measurements within 1 d to 12 mo of drug initiation) the standard deviations between duplicate measurements of maximal aggregation and late aggregation were 3.0% and 3.3%, respectively. |
| Cuisset2010{Cuisset, 2010 93 /id}France20142119 | LTA (ADP 10 μmol/L) [PAP4, Biodata Corporation, Wellcome, Paris, France] | COV of maximal platelet aggregation = 6.5% |
| Cuisset2009{Cuisset, 2009 139 /id}France18499233 | LTA (ADP 10 μmol/L) [PAP4 Aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal platelet aggregation = 6.5% |
| Lordkipanidze2009{Lordkipanidze, 2009 110 /id}Canada19419755 | LTA (ADP 5 and 20 μΜ) [ChronoLog aggregometer 540 model, Havertown, PA] | Intra-assay variability for peak platelet aggregation ranged from 8.5% to 11.3% at baseline, and 12.1% to 12.9% post-clopidogrelIntra-assay variability for late platelet aggregation ranged from 10.5% to 17.1% at baseline, and 16.6% to 17.5% post-clopidogrel |
| Paniccia2010{Paniccia, 2010 69 /id}Italy20458439 | LTA(ADP, 10 μM)[APACT-4004 aggregometer, LABiTec, Ahrensburg, Germany]Impedance aggregometry(ADP, 10 μM final concentration)[Multiplate analyzer, Dynabyte, Munich, Germany] | Mean COV for LTA = 4.8% (5 samples × 10 patients = 50 datapoints)Mean COV of Multiplate analyzer based on 5 samples obtained from each of several subjects (exact number not reported) = 5.8% |
| Migliorini2009{Migliorini, 2009 18297 /id}Italy19917884 | LTA(ADP, 10 μmol/L)[APACT4 aggregometer, Helena Laboratories, Milan, Italy] | COV of maximal percentage platelet aggregation = 6.8% |
| Gori2008{Gori, 2008 18298 /id}Italy18718420 | LTA(ADP, 10 μΜ)[APACT4 aggregometer, Helena Laboratories, Milan, Italy] | COV of platelet aggregation (ADP) = 6.8% |
| Wilson2009{Wilson, 2009 18299 /id}UK19786240 | Percentage of platelets binding fibrinogen(ADP, 10-5 mol/L)[using flow cytometry, Coulter Epics XL-MCL Flow Cytometer; Beckman Coulter Inc., Brea, CA] | Inter-assay COV = 5.7% |
| Cuisset2006{Cuisset, 2006 18300 /id}France17010792 | LTA (ADP 10 μmol/L) [PAP4 Aggregometer, Biodata Corporation, Wellcome, Paris, France] | COV of maximal intensity of platelet aggregation = 6.5% |
| Huczek2008{Huczek, 2008 18301 /id}Poland18301358 | High shear platelet function(collagen/ADP)[PFA-100, Dade-Behring, Marburg, Germany] | In “duplicate analyses”:COV using the collagen/ADP cartridge = 9.5% |
| Patti2011{Patti, 2011 18303 /id}Italy21256470 | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | Repeat analyses in 25 patients (number of replicate samples NR)Intra-assay variability = 2.0% ±1.1%Intra-assay COV = 6% |
| Lee2011{Lee, 2011 18305 /id}S. Korea21791883 | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | Variability of the P2Y12 assay = 7.5% at “the authors institution” |
| Freynhofer2011{Freynhofer, 2011 18308 /id}Austria21614416 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[Biocytex Inc, Marseille, France]; using flow cytometry [additional details NR] | Repeatability coefficient for PRI VASP = 6.6% |
| Marcucci2007{Marcucci, 2007 18309 /id}Italy17555759 | LTA (ADP 2 and 10 μM) [APACT4 aggregometer, Helena Laboratories Italia s.p.a., Milan, Italy] | COV of LTA (ADP) = 6.8% |
| Pettersen2011{Pettersen, 2011 18266 /id}Norway21426546 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[PLT VASP/P2Y12 assay, Biocytex, France]; using flow cytometry [FACS Calibur System, Becton Dickinson, Plymouth, UK]Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | Intra-assay COV for VASP assay = 2.3%Intra-assay COV for VerifyNow assay = 7% |
| Paniccia2007{Paniccia, 2007 198 /id}Italy17723123 | LTA(ADP, 2 μmol/L and 10 μmol/L)[APACT-4 aggregometer, LABiTec, Ahrensburg, Germany] | Mean COV of LTA = 6.8% (5 measurements × 10 CAD patients (50 data-points) |
| Paniccia2011{Paniccia, 2011 31 /id}Italy21192314 | LTA(ADP, 2 μmol/L, 5 μmol/L, 10 μmol/L, and 20 μmol/L)[APACT-4004 aggregometer, LABiTec, Ahrensburg, Germany] | 5 samples from each of 10 patients of the assessment of reliability:Mean COV for LTA (ADP 2 μmol/L) = 6.8%Mean COV for LTA (ADP 5 μmol/L) = 5.2%Mean COV for LTA (ADP 10 μmol/L) = 2.7%Mean COV for LTA (ADP 20 μmol/L) = 3.1% |
| Kalantzi2012{Kalantzi, 2012 18310 /id}Greece21806493 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[BioCytex, Marseille, France]; using flow cytometry [FACS Calibur, Becton-Dickinson, San Jose, CA] | Intra-assay COV <5%; inter-assay COV <8%  |
| Siller-Matula2012{Siller-Matula, 2012 18311 /id}Austria22260716 | VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[BioCytex, Marseille, France]; using flow cytometry [FACS Calibur, BD biosciences, San Jose, CA] | COV for duplicate analysis = 5% |
| Park2011{Park, 2011 18312 /id}Korea21880289CROSS VERIFY | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | COV = 7.5% “at the authors’ institution” |
| Lee2011{Lee, 2011 18313 /id}Korea21857144CILON-T | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | COV = 7.5% “at the authors’ institution” |
| Park2011{Park, 2012 18314 /id}Korea21129165CROSS VERIFY | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | COV = 7.5% “at the authors’ institution” |
| Meen2012{Meen, 2012 18315 /id}Norway22724626 | LTA(ADP, 10 μM)[ChronoLog 500 VS, Havertown, PA]Impedance aggregometry(ADP, 10 μM)[Multiplate analyzer, Dynabyte, Munich, Germany] | LTA COV = 8.2% “at the authors’ laboratory”Multiplate COV = 5.7% “at the authors’ laboratory” |
| Chiu2011{Chiu, 2011 18317 /id}Taiwan21925055 | High shear platelet function(collagen/ADP cartridges)[PFA-100, Dade-Behring, Marburg, Germany] | COV = 7.7% “at the authors’ laboratory” |
| Tsantes2012{Tsantes, 2012 18272 /id}Greece22646492 | LTA(ADP 10 μM)[Biodata-PAP-4 aggregometer, Bio/Data Corporation, Horsham, PA]High shear platelet function(PFA-100 ADP/PGE1 cartridges)[INNOVANCE PFA P2Y, Siemens Healthcare DiagnosticsProducts GmbH, Marburg, Germany]Impedance aggregometry(ADP 6.5 μM)[Multiplate analyzer, Dynabyte Medical, Munich, Germany]VASP phosphorylation assay(PGE1 ± ADP, concentration not reported)[PLT VASP/P2Y12 assay, Biocytex, Marseille, France]; using flow cytometry [Partec CyFlow ML, Partec GmbH, Munster, Germany] | *ICCs for repeat measurement*ICC for VASP assay = 0.84 (95% CI 0.15, 0.97)ICC for Multiplate analyzer = 0.94 (95% CI 0.68, 0.99)ICC for INNOVANCE PFA-100 P2Y = 0.89 (95% CI 0.46, 0.98)ICC for LTA = 0.90 (95% CI 0.47, 0.98)COV for VASP assay = 2%COV for Multiplate analyzer = 7.4%COV for INNOVANCE PFA-100 P2Y = 11.9%COV for LTA = 3.3% |
| Park2011S. Korea21880289 | Platelet agglutination assay(ADP cartridges)[VerifyNow P2Y12 assay, Accumetrics, San Diego, CA] | COV = 7.5% “at the authors’ institution” |

COV = coefficient of variation; NA = not applicable; NR = not reported; PMID = PubMed identification number.