**Appendix Table E109. Phenotypic test details in studies assessing the predictive ability of miscellaneous platelet function tests in patients with ischemic heart disease**

| **Author, year [ref]****UID****Country****Study Name** | **Test/Device name** **Device category Device name & manufacturer\*** | **Agonist used** | **Sample Collection and Procurement****Anticoagulant used****Interval between clopidogrel doses and blood sampling (in days)** **Interval between sampling and testing (in days):** | **Grouping of Phenotypes\*\* [Definition]**  | **Rational for the grouping of phenotypes reported (Yes/No)** **[short description]** | **Frequency of phenotypes**  |
| --- | --- | --- | --- | --- | --- | --- |
| Smit,201020889993NetherlandsON-TIME-2 | Fe induced platelet aggregation (FIPA)Sysmex K4500Sysmex, Kobe, Japan | AISI434 low carbon stainless steel | whole blood; collected before PCICitrate (0.109 M)NRClopidogrel came firstNR | quartiles 1-4 | Not explicitly reported | quartiles 1 162 (25%)quartiles 2 162 (25%)quartiles 3 162 (25%)quartiles 4 162 (25%) |
| Dziewierze,200515815794Poland NR | Platelet aggregation inhibitionPlateletworks with Sysmex K800Helena Laboratory | ADP | blood samples were collected at baseline and 3, 6, 12 , 24 hours from the initial loading dose of clopidogrel3.2% natrium citratebaseline and 3, 6, 12 , 24 hours15 minutes | DPAI≤10% non-responderDPAI>10% responder | not explicitly reported. | DPAI≤10% non-responder; N=7DPAI>10% responder; N=24 |
| Breet,201020179285NetherlandsPOPULAR | Plateletworks NR(Helena Laboratories,Beaumont, Texas). | ADP | NRK3-EDTA and tubes containing diphenylalanyl-Lprolyl-L-arginine chloromethyl ketone(PPACK[50 μmol/L]NR2 hours  | plateletworks <80.5plateletworks >=80.5 | Based on ROC curves | plateletworks <80.5; n=344plateletworks >=80.5; n=262 |
| Breet,201020179285NetherlandsPOPULAR | IMPACT-RIMPACT-RMatis Medical Inc, Beersel, Belgium | ADP | Before heparinization3.2% citrateNR2 hours | High OTPR ≤2Normal OTPR >2 | Based on ROC curves | High OTPR ≤2 (n = 296)Normal OTPR >2 (n = 609) |
| Mobley,200414969622USANONE | NR/Optical platelet aggregationDual Channel AggregometerChrono-Log Corp., Havertown, Pennsylvania& ThromboelastographHemoscope Corporation, Niles, Illinois& Optical platelet aggregationIchor PlateletworksHelena Laboratories, Beaumont,Texas | ADP | NRHeparin for Chronolog; Reptilase and factor XIIIa for TEG; Citrate for IchorSampling done before and after clopidogrel (but interval NR)NR | Nonresponders (failure of clopidogrel inhibition)defined as <10% reduction from baseline averaging results from all 3 analyzersResponders≥10% reduction from baseline averaging results from all 3 analyzers | Not explicitly stated | Nonresponders15/50 (30%)Responders35/50 (70%) |
| Mobley,200414969622USANONE | Optical platelet aggregationIchor PlateletworksHelena Laboratories, Beaumont,Texas | ADP | NRcitrateSampling done before and after clopidogrel (but interval NR)NR | NonrespondersResponders | Not explicitly stated | Nonresponders15/50 (30%)Responders35/50 (70%) |
| Lindvall,200919477870SwedenNone | AggregometryNRPlateletworks Helena Lab, Beaumont, TX, USA | 20 uM ADP | Blood samples were drawn from the radial arterial cannula before and after administration of a bolus of two million kallikrein inhibiting units (KIU) [of aprotinin]; measurements done just before and just after aprotinin given, with both measurements taken long after clopidogrel givenEDTAMean (SD) interval between last clopidogrel dose and surgery (with blood sampling occurring just before start of surgery) 63.7± 28 hours; median, 72 hours; IQR, 29.5-78 hoursTesting done immediately after sampling | Clopidogrel nonresponse (>90% aggregation)Clopidogrel response (≤90% aggregation) | literature published  | Clopidogrel nonresponse (>90% aggregation); 4 (27%)Clopidogrel response (≤90% aggregation); 11 (73%) |
| Gurbel, 200312714161USANo | P-selectin expressionFlow cytometryParmingen, San Diego, California | ADP 200 umol/liter | Blood was collected immediately before clopidogrel administration (baseline), and at 1, 5, and 30 days after stenting.3.8% trisodium citrateat 0, 1, 5, 30 daysNR | Nonresponder (change from baseline of <10%)Responder (change from baseline of <10%) | Not explicitly reported | Nonresponder (change from baseline of <10%):P-selectin expression: 9/38 (24%)P-selectin expression: 29 of 38 (76%) |
| Kim, 201020449634KoreaNR | turbidimetry-based optical detection deviceVerifyNowP2Y12 assayNR&LTA ADPAggRamaggregometer Helena Laboratories Corp., Beaumont, TX | 20 μmol/L ADP for VerifyNow &5 and 20 μmol/L ADP | Blood was drawn into a Greiner Bio-One 3.2% citrate Vacuette tubesodium citrate 3.2%clopidogrel- naı¨ve patients received a 300-mg loading-dose (LD) of clopidogrel at least 12 h before procedure, and blood sampling was performed after insertion of the arterial sheath. In the case of patients who were already on chronic clopidogrel therapy, blood sampling was performed at the catheterization lab without clopidogrel LD60 minutes | VerifyNowPRU<240PRU≥240LTA: Aggregation <50%Aggregation ≥50% | Based on literature | VerifyNowPRU<240 n=512PRU≥240 n=546Aggregation <50%: NRAggregation ≥50%: NR |
| Kalantzi, 201221806493GreeceNR | CD40L, PMP, FACSCalibur flow cytometer (Becton-Dickinson, San Jose,CA) | ADP | Citrated blood samples were collected after the patient’s presentation at the emergency roombefore clopidogrel administration (baseline), as well as at 5- and 30-days after clopidogrel loading. citrate5 days 30 days | nonresponderVASP PRI >50%responder VASP PRI <50% | reference 15, 23 | non-responder n=12responder n=28 |
| Siller-matula, 201222260716PEGASUS-PCI | CPA, Impact RCone and platelet analyzerDiaMed, Cressier, Switzerland | 2uM ADP | Blood samples from patientswere obtained from the arterial sheath (6F) in the catheterizationlaboratory directly post-PCI and at least 5 min afterintravenous infusion of aspirin.3.8% sodium citrate NRperformed up to 24 h after blood sampling | Clopidogrelnon-responderaccording to MEA (≥ 48 U)Clopidogrel responderaccording to MEA(< 48 U)n = 321 (80%) | ref 16, 28 | non-respondern = 81 (20%)respondern = 321 (80%) |
| Saad, 201222146578EgyptNR | Flow CytometryEPICS-XL PROFILE II Coulter flow cytometer Beckman Coulter, Inc., Fullerton, CA | ADP (5 μM/L) | Peripheral blood samples before PCI 6 hrs after clopodigrel3.8% trisodium citrate 0.25 days (6hours)NR | best cutoff value of posttreatment plateletreactivity to predict ischemic events | ROC analysis | NR |
| Lakkis, 200111458412USANR | ICHOR platelet works | ADP 20uM | Blood samples were collected 5 min before tirofiban or abciximab was started, and at 30 min, 4 hr, 12 hr during the infusion, and 2 hr after termination of either infusion.EDTA30 mins, 3h, 12h,2hNR | NR (continuous) | NR | NR |

ADP= adenosine 5'-diphosphate; Ag= aggregation; PGE1=prostaglandin; ROC=receiver operating characteristic; AUC=area under the curve; IPA= inhibition of platelet aggregation; LTA= light transmission aggregometry; MEA= multiple electrode platelet aggregometry; PFA= platelet function analysis; TEG=thromboelastography; sTEG=short thromboelastography; VASP = vasodilator-stimulated phosphoprotein; VASP-FCT=vasodilator-stimulated phosphoprotein flow cytometry; CEPI=collagen-epinephrine ; CADP=collagen-ADP; CT=closure times; HCPR=high on-clopidogrel platelet reactivity; PCI = percutaneous coronary intervention; RPA= residual platelet aggregation; GP= glycoprotein; HRP=high platelet reactivity; NPR=normal on-treatment platelet reactivity; HPPR= high post-treatment platelet reactivity; MPA= maximum platelet aggregation; RPR= residual platelet reactivity; OTPR=on-treatment platelet reactivity; DPAI= degree of platelet aggregation inhibition; PRU=P2Y12 reaction units; CRP=C-reaction protein; PRI=platelet reactivity index; LR=low responder; IQR=interquartile range; AA= arachidonic acid; LD=loading dose; MD=maintain dose; SD=standard deviation; NR=not reported