Chimerism Testing

For Bone Marrow Engraftment Monitoring

Agena BIOSCIENCE

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Bone Marrow Engraftment Monitoring

Recipients of allogenic bone marrow engraftments require clinical monitoring to allow for early diagnosis of such post-transplant adverse events as rejection, graft vs. host disease or malignancy relapse. Chimerism testing is performed on specimens to determine the genetic contribution from the transplant recipient and the donor. Short tandem repeat (STR) analysis has traditionally been the standard of care for this testing.

The Challenge for Labs:

Approximately 20,000 bone marrow engraftments are performed in the US each year[2]. In Europe, there are more than 40,000 annually[3]. This number is expected to grow over the next 10 years and the prevalence of survivors will grow five-fold through 2030[2,4]. Increased transplant numbers and longer survival mean greater demand for bone marrow chimerism testing.

Growing Demand Strains Lab Resources	Inneficient Testing Methods
Lab resources are strained by increasing sample volumes that must be processed using an inefficient technology.	STR-based bone marrow engraftment chimerism testing is burdensome and requires time-intensive results interpretation by specialized staff.

Time-consuming results calculations burden laboratory resources. **Is there a way to streamline chimerism testing** to save time and money?

A More Efficient Method

Agena's SNP-based Chimeric ID panel and automated results reporting reduces the time and money required to determine composition of a DNA sample.

Automation Friendly Workflow

Results in an 8-hour shift with minimal hands-on time.
No DNA dilution required.

Accurate Chimerism Determination

Accurately determine percent DNA contribution.

Automated Results Reporting

Chimerism results are calculated in seconds. Save time with reporting software provided at no extra cost.

Save Time & Money

Low-cost reagents and automated results reporting saves lab resources.

Versatile Application Offering

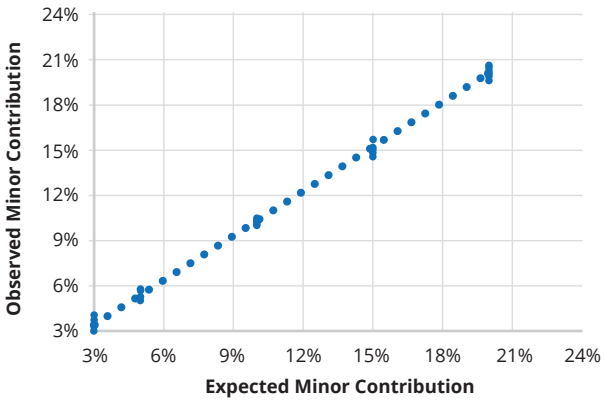
The MassARRAY system enables testing in multiple application areas including oncology, PGx and hereditary genetic testing.

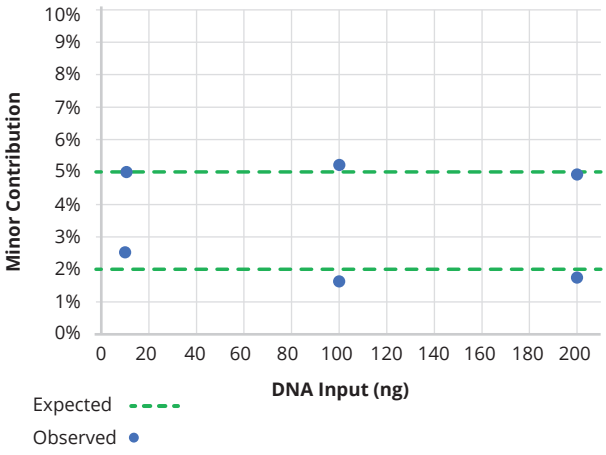
Chimeric ID Panel & Results Reporter

The Chimeric ID panel and results reporter for the MassARRAY system provides simplified chimerism testing. The panel consists of 92 independent SNPs with minor allele frequency between 0.45 and 0.55 across several HapMap populations. The results reporter automatically queries stored reference profiles and calculates the composition of post-transplant follow-up specimens in seconds. Results are provided in a convenient report.

ACCURATE CHIMERISM CALLING

Studies demonstrate accurate determination of major and minor DNA contribution in mixed samples across a range of dilutions. Chimerism calls at all dilution points averaged +/- 1% variance from "truth" as established by X/Y chromosome analysis.



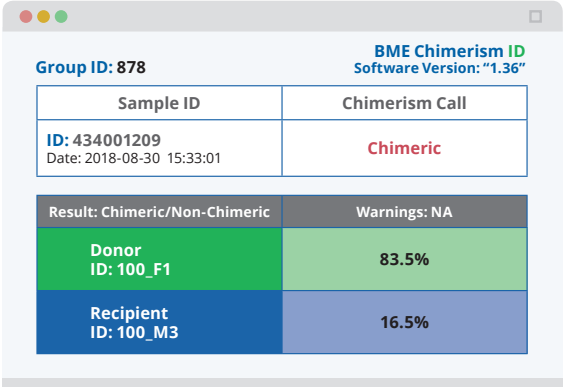


NO DNA DILUTION REQUIRED

STR-based methods warn that high DNA input can affect accuracy. Therefore, many labs tediously dilute extracted DNA. The Chimeric ID panel provides accurate chimerism calling with 5ng – 260ng of DNA input. Skip the DNA dilution and save time!

AUTOMATED RESULTS CALCULATION

Percent contribution from major and minor profiles is calculated in seconds and displayed in an easy-to-interpret sample report. This reduces the burden on specialized staff and frees up critical resources.

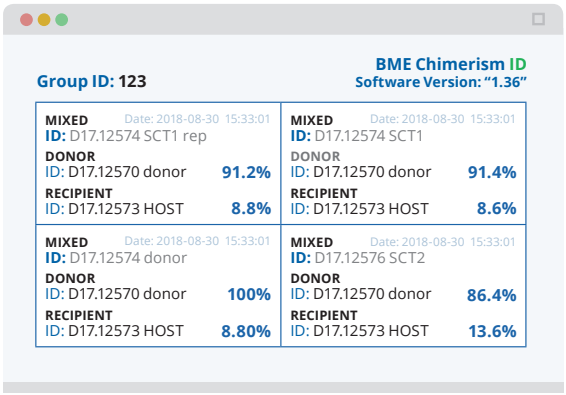


Group ID: 878

BME Chimerism ID
Software Version: "1.36"

Sample ID	Chimerism Call
ID: 434001209 Date: 2018-08-30 15:33:01	Chimeric

Result: Chimeric/Non-Chimeric	Warnings: NA
Donor ID: 100_F1	83.5%
Recipient ID: 100_M3	16.5%



Group ID: 123

BME Chimerism ID
Software Version: "1.36"

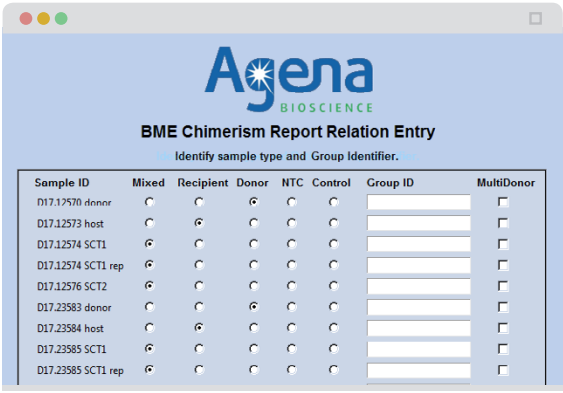
MIXED Date: 2018-08-30 15:33:01 **ID:** D17.12574 SCT1 rep **DONGOR** ID: D17.12570 donor 91.2% **RECIPIENT** ID: D17.12573 HOST 8.8%	**MIXED** Date: 2018-08-30 15:33:01 **ID:** D17.12574 SCT1 **DONGOR** ID: D17.12570 donor 91.4% **RECIPIENT** ID: D17.12573 HOST 8.6%
MIXED Date: 2018-08-30 15:33:01 **ID:** D17.12574 donor **DONGOR** ID: D17.12570 donor 100% **RECIPIENT** ID: D17.12573 HOST 8.80%	**MIXED** Date: 2018-08-30 15:33:01 **ID:** D17.12576 SCT2 **DONGOR** ID: D17.12570 donor 86.4% **RECIPIENT** ID: D17.12573 HOST 13.6%

HISTORIC RESULTS TRACKING

Monitor results over time. All previous results can be instantly displayed in a convenient report.

INTUITIVE SAMPLE LOG-IN

The intuitive sample log-in interface allows you to enter sample names and quickly identify them as post-transplant follow-up, pre-transplant profile, or control samples. A group ID automatically links follow-up samples to the appropriate profiles.



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BME Chimerism Report Relation Entry

Identify sample type and Group Identifier.

Sample ID	Mixed	Recipient	Donor	NTC	Control	Group ID	MultiDonor
D17.12570 donor	○	○	●	○	○		☐
D17.12573 host	○	●	○	○	○		☐
D17.12574 SCT1	●	○	○	○	○		☐
D17.12574 SCT1 rep	●	○	○	○	○		☐
D17.12576 SCT2	●	○	○	○	○		☐
D17.23583 donor	○	○	●	○	○		☐
D17.23584 host	○	●	○	○	○		☐
D17.23585 SCT1	●	○	○	○	○		☐
D17.23585 SCT1 rep	●	○	○	○	○		☐

ASK ABOUT OUR OTHER APPLICATIONS

The MassARRAY is a versatile genetic analysis tool and not limited to a single application. Ask for information regarding our other applications including Oncology, PGx, hereditary genetic testing and sample integrity.

ORDERING INFORMATION

Catalog No.	Item	Chip format	# of Samples
13245D	Chimeric ID Panel Set - CPM (2x384)	384 CPM	96
13245	Chimeric ID Panel Set (2x384)	384	96
13169D	Chimeric ID Panel Set - CPM (10x384)	384 CPM	480
13169	Chimeric ID Panel Set (10x384)	384	480
13168F	Chimeric ID Panel Set - CPM (10x96)	96 CPM	120
13168	Chimeric ID Panel Set (10x96)	96	120

References

1. Pasquini MC, Wang Z: Current use and outcome of hematopoietic stem cell transplantation: CIBMTR Summary Slides, 2012. Available at: http://www.cibmtr.org.
2. NS Majhail, LW Mau, T Payton, E Denzen. National survey of blood and marrow transplant center personnel, infrastructure and models of care delivery. 2015. Available at: www.cibmtr.org.
3. JR Passweg et al. Hematopoietic stem cell transplantation in Europe 2014: more than 40 000 transplants annually. Bone Marrow Transplantation (2016) 51, 786-792.
4. Majhail et al. Prevalence of Hematopoietic Cell Transplant Survivors in the United States. Biol Blood Marror Transplant. 2013. 19(10): 1498-1501.

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