POLICY BRIEF

PHILIPPINE COUNCIL FOR HEALTH RESEARCH AND DEVELOPMENT

Using the RM Y-STR DNA markers in the identification of paternally related males

2021, No. 1

CONTEXT

Y-chromosomal DNA typing is the most powerful tool for male identification. However, the predictive power of the current Y-STR marker sets used in forensic DNA typing is limited when there is need to distinguish paternally- related male individuals; for instance, when related male individuals are involved in a crime.

In 2013, a study funded by the Philippine Council for Health Research and Development (PCHRD) analyzed the utility of 13 rapidly mutating (RM) Y-STR DNA markers in distinguishing paternally related Filipino males. In the study, 154 paternal family trios (composed of 141 father-son-son or 13 grandfather-father-son families) participated in the study. This panel of RM Y-STR DNA markers was known to have a higher mutation rate than the conventional Y-STR DNA markers.

KEY FINDINGS

Findings demonstrated high genetic diversities of the RM Y-STR DNA markers in the Philippine population. The mutation rates for the 34 Y-STR DNA markers (or 36 Y-STR DNA marker units) showed higher mutation rates of the RM Y-STR DNA compared to conventional Y-STR DNA that is consistent with other studies. RM Y-STR DNA markers successfully distinguished more paternal pairs than conventional Y-STR DNA markers among paternal pairs.

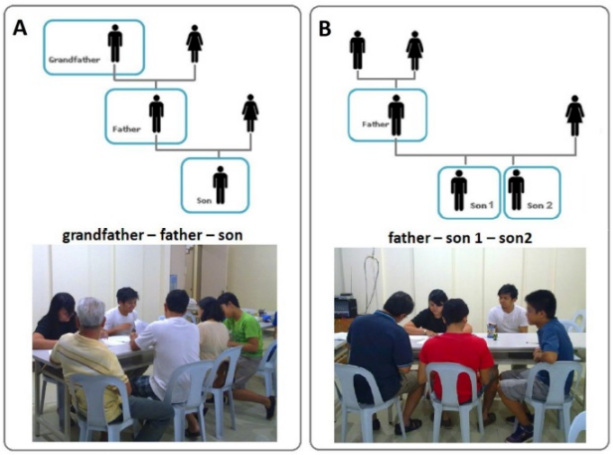

Figure 1. Research participants; (A) a grandfather, father, and the grandson or (B) a father with two sons

CONCLUSION

The RM Y-STR DNA markers in the Philippine population is expected to be a powerful tool in discriminating paternally- related males especially in investigations involving suspects related to each other as well as in victim identification.

RECOMMENDATIONS

In terms of forensic practice, the more reliable identification of male sources of DNA using the new markers will be particularly useful when dealing with cases involving suspects that are related to each other. Policymakers working in post-disaster management can also consider this DNA typing as it can also be used in terms of victim identification in the context of calamities where entire families were lost.

PCHRD POLICY BRIEF

Project Information

Project title:
Y Chromosomal DNA Variation of Filipinos across Families using Rapidly Mutating (RM) Y Chromosome Specific Short Tandem Repeat (STR) Markers

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FURTHER READING

Salvador JM, Rodriguez JJB, Carandang LCDL, et al. Filipino DNA Variation at 36 Y-chromosomal Short Tandem Repeat (STR) Marker Units. *Phil J Science*. 2019;148(S1):43-52.