Forensic Research Panels

Forensic Research Panels	Types of Panels		What it works for?	What challenges the panels help with?	How Daicel Arbor helps?	Research Application purpose
Forensics catalogue & community panels	**Broad range of Panels listed below**	Offers comprehensive myBaits panels and workflows for forensic genomics optimised for degraded DNA and NGS platforms	Human identification from degraded or trace DNA Kinship and ancestry inference using SNP panels Ancient and historical DNA recovery for anthropological studies Disaster victim identification (DVI) and missing persons cases Mixture analysis and contamination control in forensic samples Process development for applying massively parallel sequencing (MPS) (a.k.a. NGS) techniques to forensics scientific challenges	Highly degraded or low-input DNA from forensic samples, precluding the use of WGS (too expensive) or amplicon-based targeted sequencing (difficult or impossible for reliable use in many high-resolution applications such as genotyping of 100,000's-1,000,000+ SNP markers) Complex mixtures and contamination Need for cost-effective, high-resolution genotyping Compatibility with NGS workflows for SNP-based identification Scalable solutions for large casework or population studies	Targets informative SNPs for population structure and biogeographic ancestry Multiple panels options, optimized for degraded DNA and NGS workflows - Full-service options via my Reads (QC, library prep, capture, sequencing, bioinformatics) for RUO projects Bringing clarity to investigations, identifying unknown individuals, and expanding the reach of modern genetic genealogy	Kinship and ancestry inference Disaster victim identification Anthropological and ancient DNA studies Population genomics Genetic genealogy

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myBaits Expert WGE (Whole Genome Enrichment) Kits	myBaits WGE Sequencing of Whole Human and Animal Genomes	Predesigned kits for human (Caucasian, African, Japanese) or customized non-human (from user-supplied genomic DNA) genome-wide DNA enrichment o Ideal for exploratory studies and ancestry inference o Inappropriate if recovery of specific nuclear SNPs is essential to the research				
	myBaits Expert Mito Kits	Targeted capture of human mitochondrial genome for haplogroup assignment and maternal lineage analysis				
	myBaits Compass 1.2M SNP Kit	This hybridization-capture kit targets ~1.2M genome-wide SNPs selected for maximum compatibility with leading FGG databases and workflows. Designed for strong kinship resolution and accurate variant calling, the panel omits ClinVar-associated SNPs and is offered in five scalable kit sizes.	SNP-based panel for human identification and ancestry inference			

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	myBaits Community Panels FORCE v1 & FORCE v2	The FORCE panel is a DNA testing tool used in forensics to identify people and determine family relationships. It examines thousands of non-medical DNA markers to help confirm identity, detect relatives (even distant ones), infer ancestry, and estimate physical traits like eye and hair colour. The V2 design of the FORCE myBaits panel consists of 5,402 SNPs of no clinical relevance, selected from commonly used high-density microarray chips. The FORCE panel includes 3,928 autosomal SNPs for extended kinship analyses, which were shown to provide accurate relationship predictions between fourth-degree relatives (i.e., first cousin once removed). The FORCE panel also encompasses 136 identity informative SNPs, 41 phenotype informative SNPs (HIrisPlex-S), 237 ancestry informative SNPs, 242 X-chromosomal SNPs, and 818 Y-chromosomal SNPs.	The test is designed for accuracy while ensuring that no health or clinical information is revealed Confirm a person's identity Determine family relationships, even between distant relatives Provide clues about a person's ancestry Help predict visible traits like hair and eye colour			

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	myBaits Community Panel Parabon/AFDIL 95K Kinship Panel	Enrichment panel targeting 94,752 human SNPs for assessment of kinship out to 4th-degree relatives, particularly for highly degraded samples. Gorden et al. (2022) demonstrated this panel on a set of World War II-era highly degraded samples and a pool of family references genotyped on the Illumina CytoSNP-850K chip. The panel is designed for use with Parabon's Fx software for extended kinship from very low coverage sequencing data. ~95,000 SNPs for comprehensive identity and ancestry analysis	Enables robust kinship inference and population genetics studies			