

# Applied Biosystems™ SwiftArrayStudio™ Solution Array intégrée pour des résultats en deux jours

Journée Achrom-Puce

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 The world leader in serving science



# The arrays

Main differences regarding probes, design and resolution



## Type of probes

Oligonucleotide probes, SNP probes, type of probes will dictate what alterations can be detected



## Number of probes

Density of probes is critical for performance, resolution and ultimately the testing applications

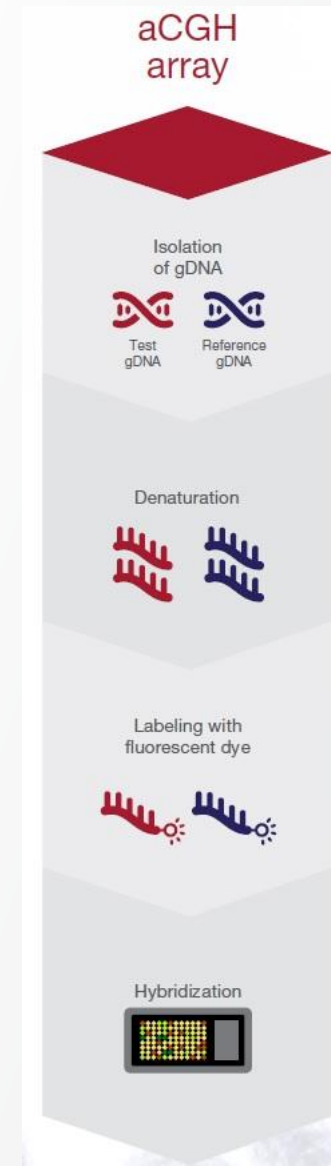


## Design and content

The way that probes are distributed and the regions targeted will impact the scope of applications and the longevity of the microarray

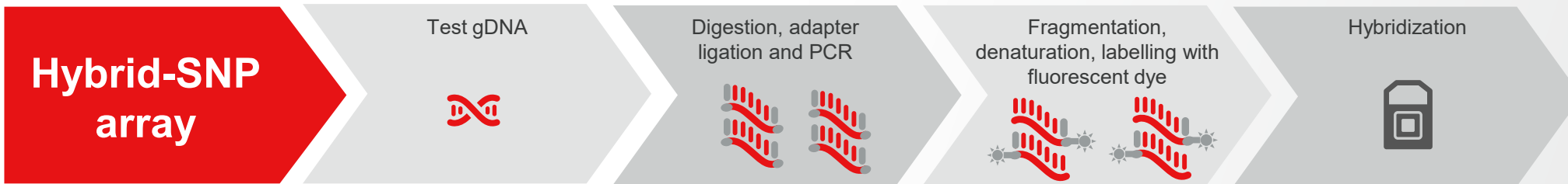
# Not all arrays are created equal!

- **Array comparative genomic hybridization (aCGH)**
  - mixes test and reference DNA
  - most aCGH arrays detect CNVs only
- **Single-nucleotide polymorphism (SNP) arrays**
  - do not require reference DNA
  - only detect SNPs
- **Hybrid-SNP arrays**
  - interrogate both, SNP and non-polymorphic markers
  - are SNP arrays that include high-resolution probes for genome-wide analysis of CNVs, which is implicated in genetic disorders
  - have the potential to query for higher numbers of SNPs and CNVs at much higher resolution



# Not all arrays are created equal!

CytoScan, an hybrid SNP array



## Arrays available



### CytoScan HD Accel (2023)

- 2,8M markers per array
- 2M oligo markers
- 750K SNP markers
- Whole-genome coverage



### CytoScan 750K Accel (2024)

- 960K markers per array
- 700K oligo markers
- 255K SNP markers
- Whole-genome coverage



### OncoScan

- For FFPE samples
- 240K SNP markers
- Cancer gene focused
- Whole-genome coverage



### CytoScan XON

- Exon-level copy number array
- Whole-genome coverage
- **Clariom S and D /miRNA**
- Gene level and WT coverage



**SwiftArrayStudio & Assay**

**NOW: 2 DAYS (30 H)**  
**↓ DOWN FROM 5 DAYS!**



# Built for Speed, Engineered for Reliability

✓ Data the next day

*Built for speed, genome-wide performance without compromise.*

✓ Automated Array Processing

*Reduce manual steps. Increase efficiency.*

✓ Reliable & Robust

*Built for maximum uptime.*

✓ Trusted Support

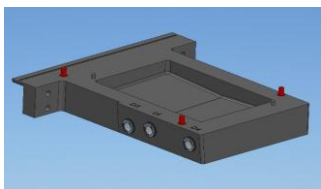
*White glove service and bioinformatics experience.*



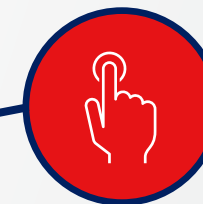
# Applied Biosystems™ SwiftArrayStudio™ Microarray Analyzer



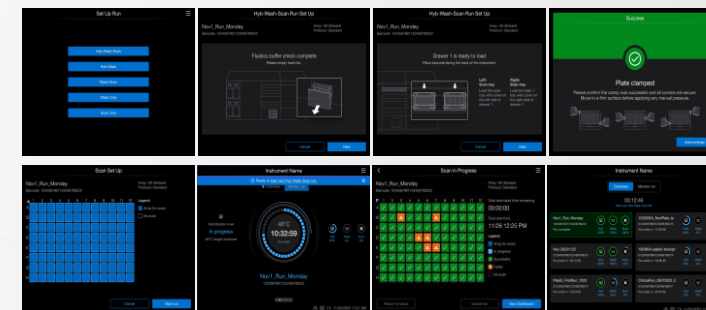
- Fast wash/Stain 2.5 hours
- Fully integrated bottles & reagents
- Reduced footprint
- New wash station



- Increased capacity – up to 4 plates
- Faster scan time (1.07 minutes/sample 96 well plate)
- Error prevention-barcoded plates
- Internal sensors to help prevent user errors



- Integrated touch screen
- Intuitive icons
- Guided loading/unloading
- Remote monitoring
- Step-by-step error recovery
- Optional server



- Remote troubleshooting for improved service and support
- Increased uptime from new hardware



- Auto teach to avoid plate crashes and simplify installation
- New electromechanical wiring
- New fluidics design

**Automated Array Processing with excellent uptime and user-friendly interface**

# Axiom™ SwiftArray™ Assay



Minimal hands on time  
(2 hrs)



Consolidated 6 hr  
target prep complete  
on day 1 by 1 FTE



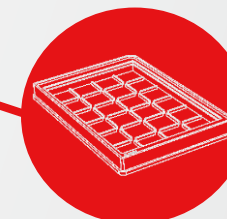
Master mix reagents, less tubes  
(40% reduction: 24 vs 39)



No extra equipment  
required for array  
processing (hyb-scan)



Quality genotypes next-  
day (~ 30 hrs)



Universal stain  
trays: "Pour & go"  
one layer stain



**SwiftArray Assay provides genotypes next-day with optimized reagents, plasticware, and workflow**



Reduction in plastics compared to Axiom  
2.0 Assay

# Axiom™ PangenomePro & PangenomePro Plus Arrays

*Data in under 2-days on the Axiom PangenomePro Array, offering accurate genotyping of important genetic markers and whole genome imputation across five ancestral populations for disease research and risk prediction in population genetics studies.*

**Whole Genome Coverage**  
+900k markers

**Comprehensive Content**  
*ClinVar and ACMG 73 for direct genotyping*

**Imputation Aware Design**  
*Improved imputation coverage and accuracy compared to older Axiom arrays*

**2 Day manual workflow**  
*Standard and Plus Workflows with mPCR*

**Updated Modules**  
*PGx, Blood, neurological disorders and ancestry*

**CNV on a SNP Array, including difficult PGx regions**  
*CNV regions from PangenomiX, PScan, Universal Blood Typing Array*

**Improved Population Diversity**  
*Included coverage for Non-Hispanic white, Hispanic, Asian and Non-Hispanic black*



**High Coverage and high throughput array for Genome Wide Association Studies, Polygenic Risk Scores and Population Health Studies**

# Axiom™ PharmacoPRO™ Array

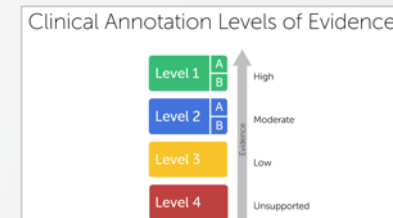
The premier choice for pre-emptive pharmacogenomics research, with star allele and metabolizer status available on the next day.

## Star Allele & Metabolizer Status Reports

Seamless analysis within Axiom™ Analysis Suite Software

## Comprehensive PGx Content

AMP PGx, ClinPGx (CPIC guidelines & PharmGKB level 1A-2B), & more...



## Results in 30 hours

2-day assay with a multiplex PCR kit – no separate enzyme purchase!

## Copy Number Analysis

>30 important ADME genes, including CYP2D6, 2A6, 2B6, DPYD, SLCO1B1

## Targeted Amplification

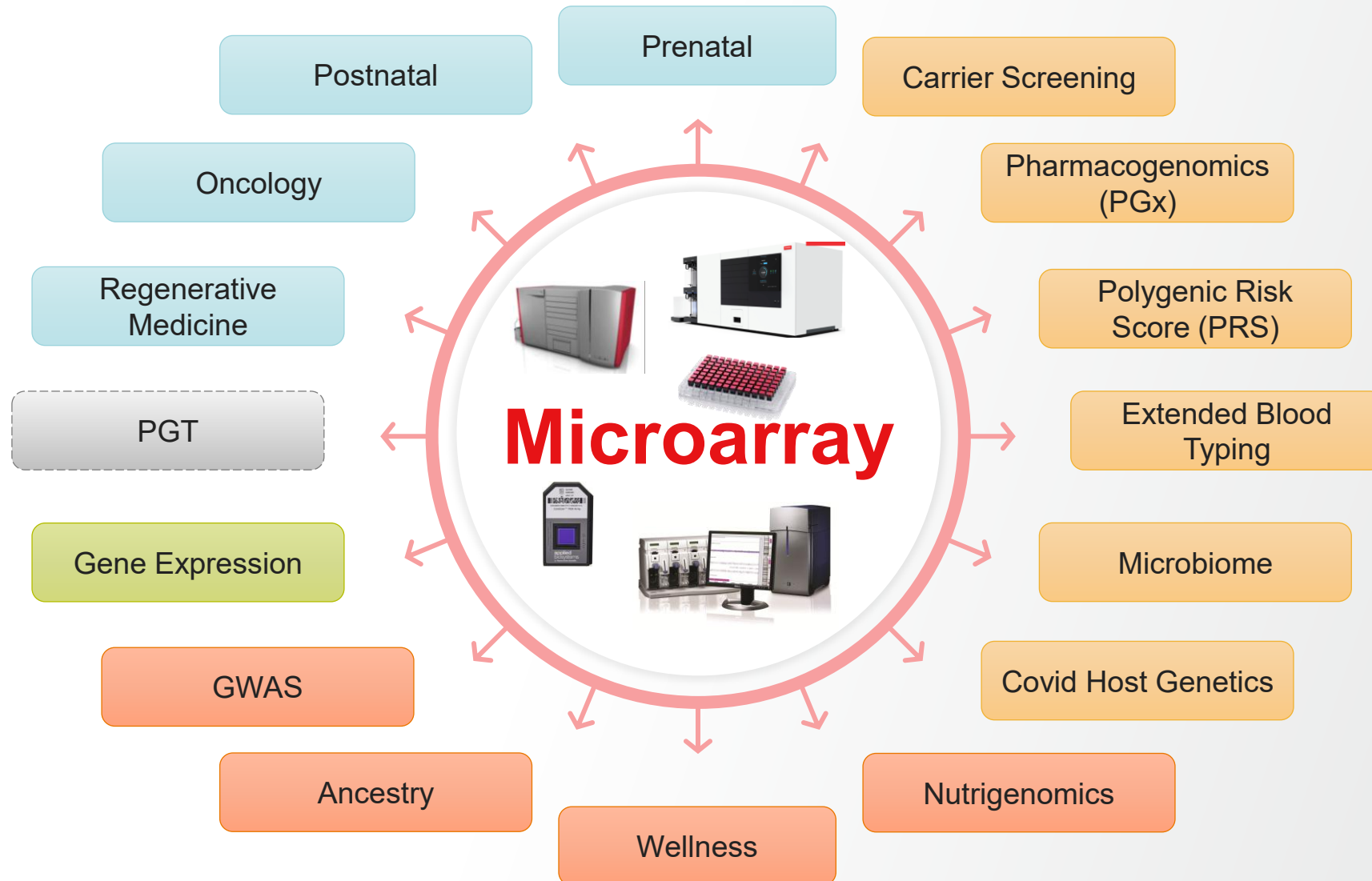
Multiplex PCR for high value regions to minimize pseudogene interference, including CYP2D6, 1A2, 2A6, 2B6, 2C19, GSTM1, SULT1A1

## Human Leukocyte Antigens (HLA) Typing

4-digit HLA types for 11 major loci with reports

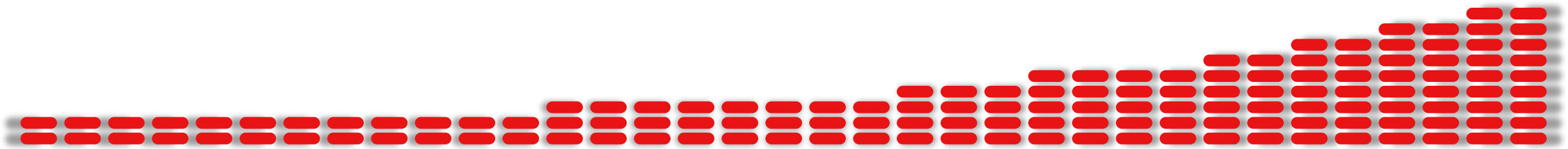
Pharmacogenomic genotypes and metabolizer status in under 2 days

# Exploring the Full Potential of Microarrays



Not all applications shown in this presentation are available for the new instrument displayed.  
Applications for this instrument will be developed and launched in phases. Please consult available official documentation for more information.

# From low throughput to very high throughput



Low  
10's/week

Throughput

High  
100's/week



Prenatal	Oncology
Postnatal	Regenerative Medicine
PGT	Gene Expression

Prenatal	Oncology	Carrier Screening	Extended Blood Typing
Postnatal	Regenerative Medicine	Pharmacogenomics (PGx)	Microbiome
PGT	Gene Expression*	Polygenic Risk Score (PRS)	Covid Host Genetics
GWAS	Wellness	Ancestry	Nutrigenomics

\*Gene expression on GeneTitan depending on the model

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# Merci!

Pour plus de renseignements : [christophe.dabadie@thermofisher.com](mailto:christophe.dabadie@thermofisher.com)