FUSIONPlex™

SOLID TUMOR AND SARCOMA RESEARCH PANELS

> Next generation sequencing panels that focus on what's important. Now updated with expanded gene content.

Fusions represent an important class of biomarkers for both solid tumors and sarcomas, so the use of a comprehensive detection method is critical. An ideal fusion assay is multiplexed, simple to use, and able to sensitively detect both known and novel fusions. Traditional single-biomarker fusion assays, including FISH, IHC, and RT-PCR, have several operational drawbacks and require serial testing. To save both time and precious tissue sample while also maximizing multiplexing capabilities, labs are increasingly choosing sequencing approaches for fusion detection. However, selecting the *right* sequencing platform is key. DNA-based fusion detection methods typically suffer from sensitivity issues, particularly in large, low-complexity genomic regions. And although RNA-based assays are more sensitive in these spaces, some of these do not enable novel partner identification, or may require complex workflows.

FUSION*Plex*™ panels offer a scalable and easy-to-use solution for RNA-based sequencing of solid tumors and sarcomas that meet the research needs of every lab. With Anchored Multiplex PCR (AMP™) chemistry at the core, and an integrated bioinformatic platform, these targeted NGS panels offer a streamlined fusion detection solution from sample to data. Choose from a suite of specialized catalog panels, including recently expanded designs for lung, sarcoma, and pan-solid tumors that cover newly published fusion breakpoints and isoforms of interest in key gene targets, or create a custom panel to meet your exact needs.

High sensitivity fusion detection with a fast and easy workflow

Integrated bioinformatic pipeline for an end-to-end solution

Fast and flexible customization

Find your ideal NGS fusion assay

	Simple, fast workflow	Known fusion detection	Novel fusion detection	Oncogenic isoform detection	Easy panel customization
FUSION*Plex* AMP chemistry (RNA)	✓	✓	✓	✓	✓
Hybrid capture (RNA)	✗[1]	✓	✓	✓	✗
Hybrid capture (DNA)	✗[1]	✓	!²	!⁴	✗
Opposing primer amplicon (RNA)	✓	✓	!³	!⁵	!

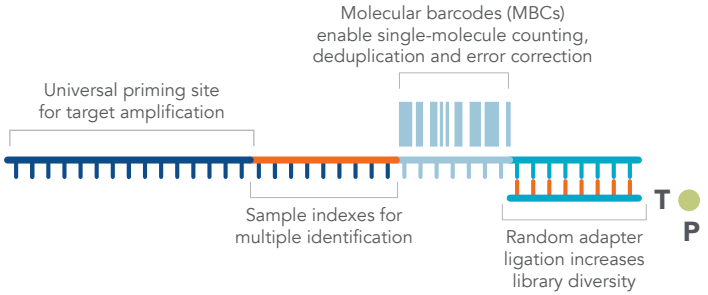
! *Indicates that the methodology may not be the best choice for optimal results*

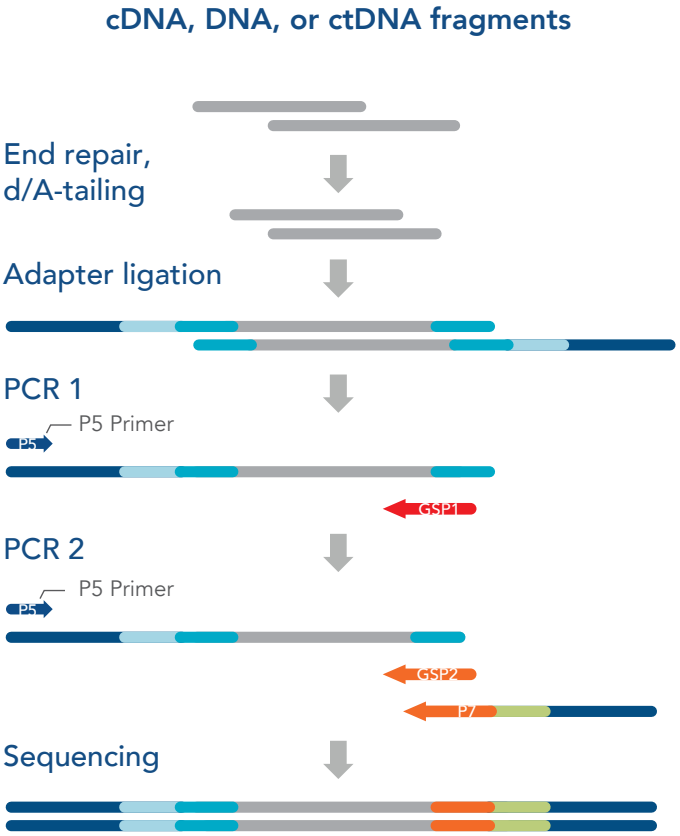
1. Complex library preparation processes (Hsiao *et al.* 2019)
2. Introns can be challenging to target and map reads to resulting in coverage gaps (Benayed *et al.* 2019, Davies *et al.* 2018)
3. Breakpoint-spanning reads are not sequenced; expression imbalance-based analyses can result in uncertainty (Vendrell *et al.* 2017)
4. Isoform expression cannot be evaluated using DNA input.
5. Relative mRNA abundance cannot be confirmed without molecular barcodes (MBCs).

Engineered for reliability.

Patented Anchored Multiplex PCR (AMP) target enrichment chemistry provides robust detection of oncogenic drivers.

- Optimized for FFPE samples
- Known and novel fusion detection
- Molecular barcode (MBC)-driven error correction and unique molecule identification

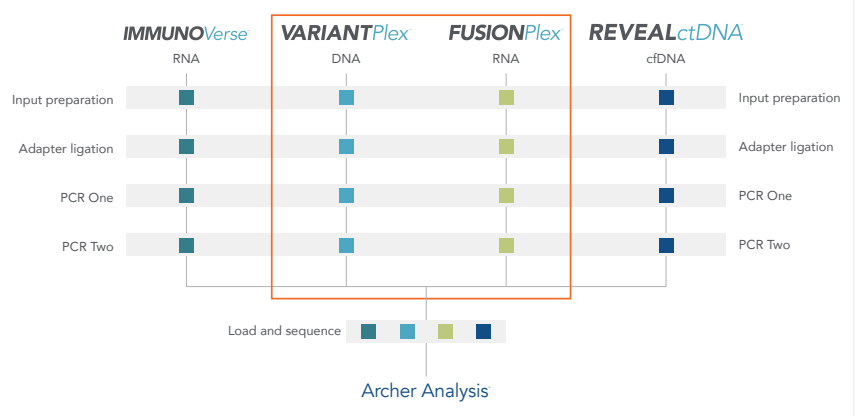




Surprisingly simple NGS workflow.

Designed with simplicity in mind, easy-to-implement NGS research assays in any lab.

- 1.5 day library prep with minimal hands-on time
- Input requirements as low as 10 ng RNA
- Lyophilized reagents minimize error and eliminate the need for master mixes
- Single-use reactions reduce contamination risk
- Parallel workflow for RNA, DNA, and ctDNA analysis



One powerful platform. Endless potential.

All FUSION*Plex* assays are supported by an integrated analysis platform—Archer Analysis—providing a turnkey solution to complex genomic problems.

- Simple and intuitive web-based interface
- In-line visualization for clear reporting
- Access to Quiver, our curated database of known fusion events
- Integrates LIMS data and third party providers
- Deploys securely to a cloud or local server

Introducing Archer's newest FUSION*Plex* research assays

Now with expanded gene content

FUSIONPlex
Lung v2
Sarcoma v2
Pan Solid Tumor v2

FUSION*Plex* Core Solid Tumor—optimized for expanded SNV/indel detection

Fusions | Splicing | SNVs | Indels | Expression

Thoughtfully designed panels updated with the most relevant gene content

- Known and novel fusions in key solid tumor and sarcoma genes including *ALK*, *RET*, *ROS1*, *NTRK1-3*, *FGFR1-3*, *EWSR1*, *JAZF1*, and *FUS*
- Oncogenic isoforms in *METΔex14*, *EGFRvIII*, *PDGFRAΔ8,9*, *FGFR1*, and *KDD*
- High priority SNV/indel hotspots in *EGFR*, *BRAF*, *PIK3CA*, and *ERBB2*
- Emerging fusion and variant gene targets

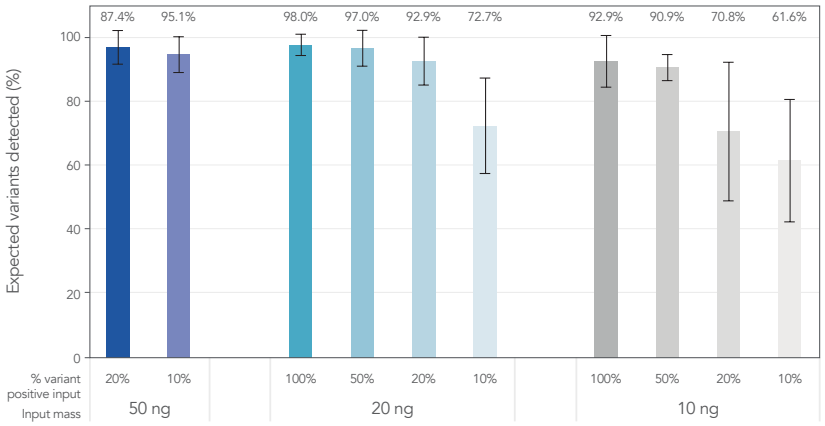
Pan-solid tumor applications

Solid tumors | Sarcomas

Sensitive variant detection even with limited sample input*

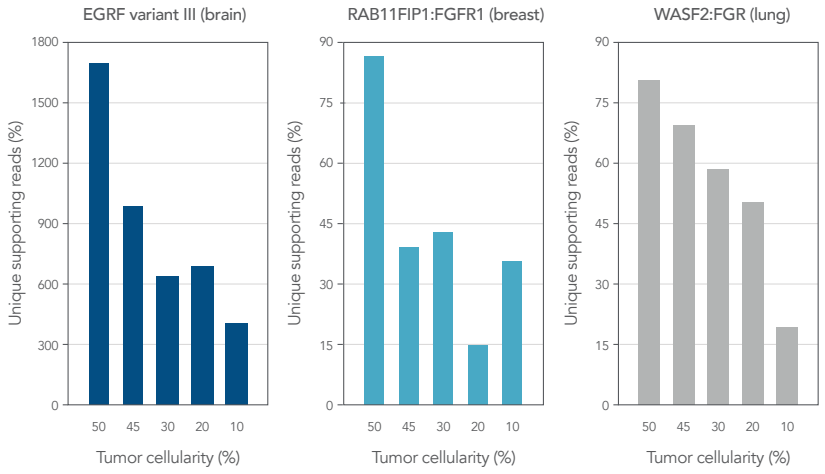
Fusion and oncogenic isoform detection in FFPE reference material at low input masses

- ≥95% sensitivity for fusions and oncogenic isoforms using 50 ng TNA, 10% variant positive input by mass

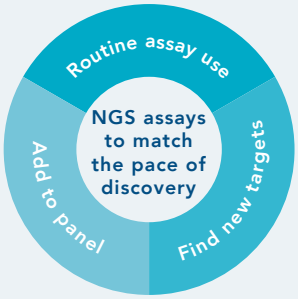


Quantitative and sensitive fusion and oncogenic isoform detection down to 10% tumor cellularity

- 100% sensitivity for fusions using 50 ng TNA, ≥10% tumor cellularity
- 100% specificity for fusions using 200 ng TNA input from lung, brain, colon, and lymph node (data not shown)



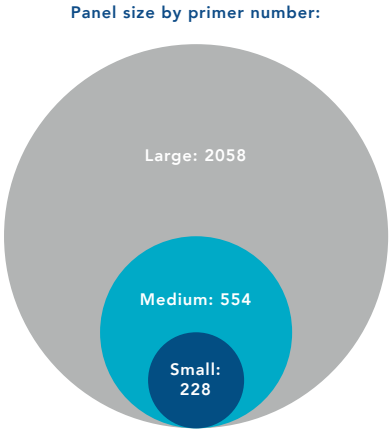
* Internal Archer data

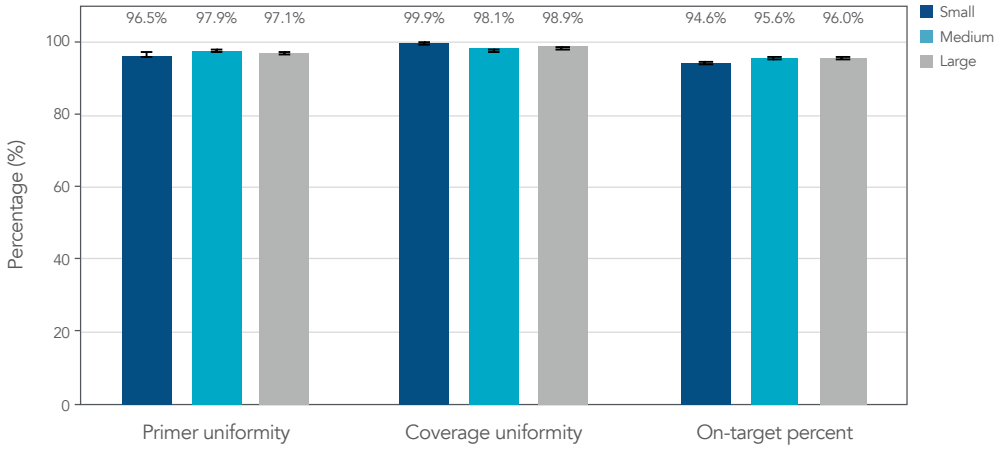


Adaptable assays for tomorrow's needs

AMP chemistry powers easy customization. Since Archer's assays are modular, they can grow and scale as your laboratory evolves over time.

AMP primers function independently, meaning new gene content can easily be added to existing panels without compromising assay performance.





FUSION*Plex* panels for solid tumor research

Compatible with Illumina® and Ion Torrent® sequencers.

Newly expanded panels:

FUSION*Plex* Lung v2

- Illumina: AB0135
- Ion Torrent: AB0136

FUSION*Plex* Sarcoma v2

- Illumina: AB0133
- Ion Torrent: AB0134

FUSION*Plex* Pan Solid Tumor v2

- Illumina: AB0137
- Ion Torrent: AB0138

Custom:

- Design your own panel or add to an existing product. It's your panel, your way.

Learn more at **www.archerdx.com/solid-tumor-research** or email us at **adx-sales@idtdna.com**

INTEGRATED DNA TECHNOLOGIES ARCHER™