Expression Pathology

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Mass Spec Protein Assays in FFPE Tissue

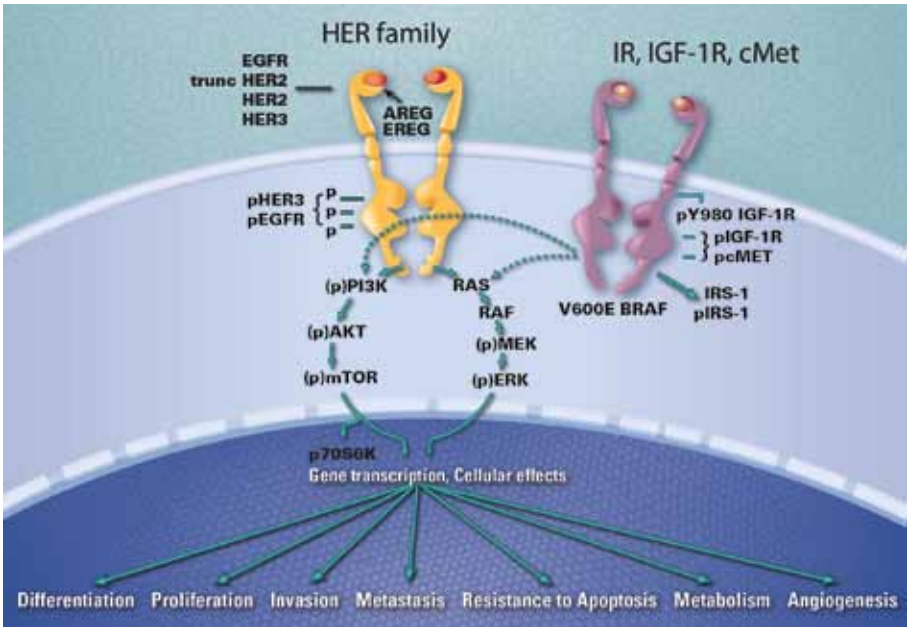
Building a Pipeline of Clinical Assays

Expression Pathology is a leader in clinical applications of mass spectrometry based tissue protein analysis. We are developing assays that measure functional cancer signaling networks in FFPE tissue to individualize and improve patient treatment decisions. Our new technology obviates many of the limitations of immunohistochemistry based techniques. The proprietary Liquid Tissue®-SRM platform utilizes patented technology which makes possible quantitation of proteins and their phosphorylation states by mass spectrometry using small amounts of laser microdissected FFPE tissue.

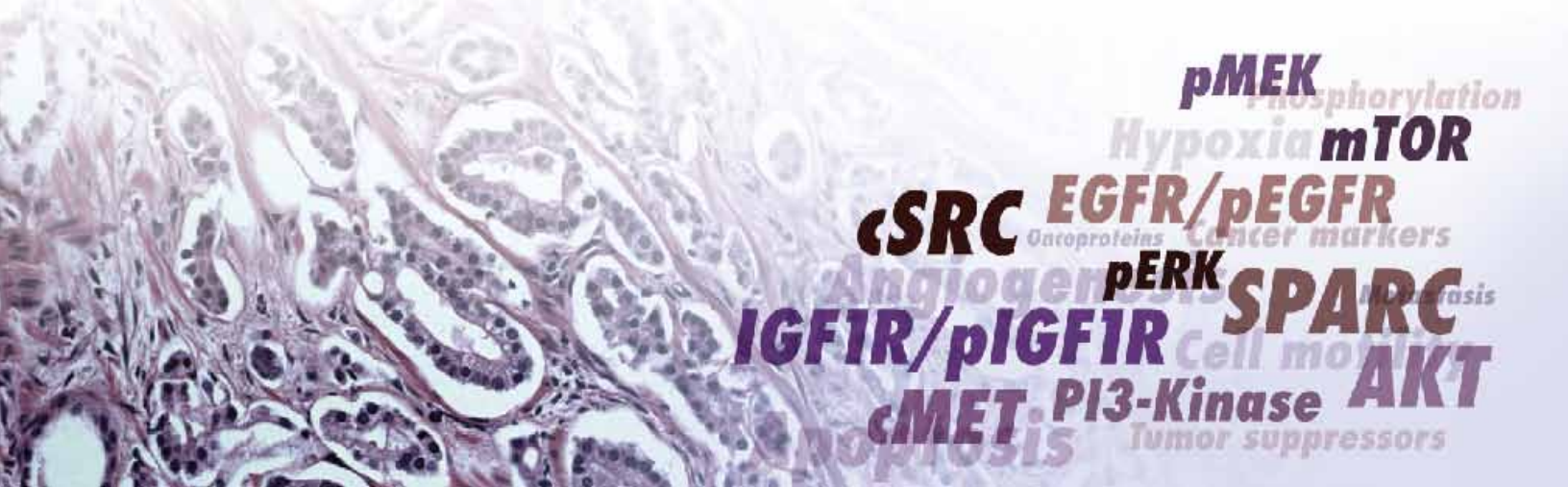
We offer a broad menu of SRM assays for major cancer signaling networks including EGFR, IGF-1R, cMET, HER3, cSRC, and their phosphorylation states, as well as many others.

The assays can be multiplexed to simultaneously measure large numbers of proteins thus providing a powerful tool to advance development of targeted therapies and improve patient stratification.

Expression Pathology is developing a CLIA certified facility to offer proprietary Liquid Tissue®-SRM assays that may improve patient selection for targeted drugs and aid in the evaluation of tumors.



The assays for proteins in the EGFR and IGF-1R pathways are of particular interest to many drug drug developers and cancer researchers. See reverse for assays available or under development.



Process

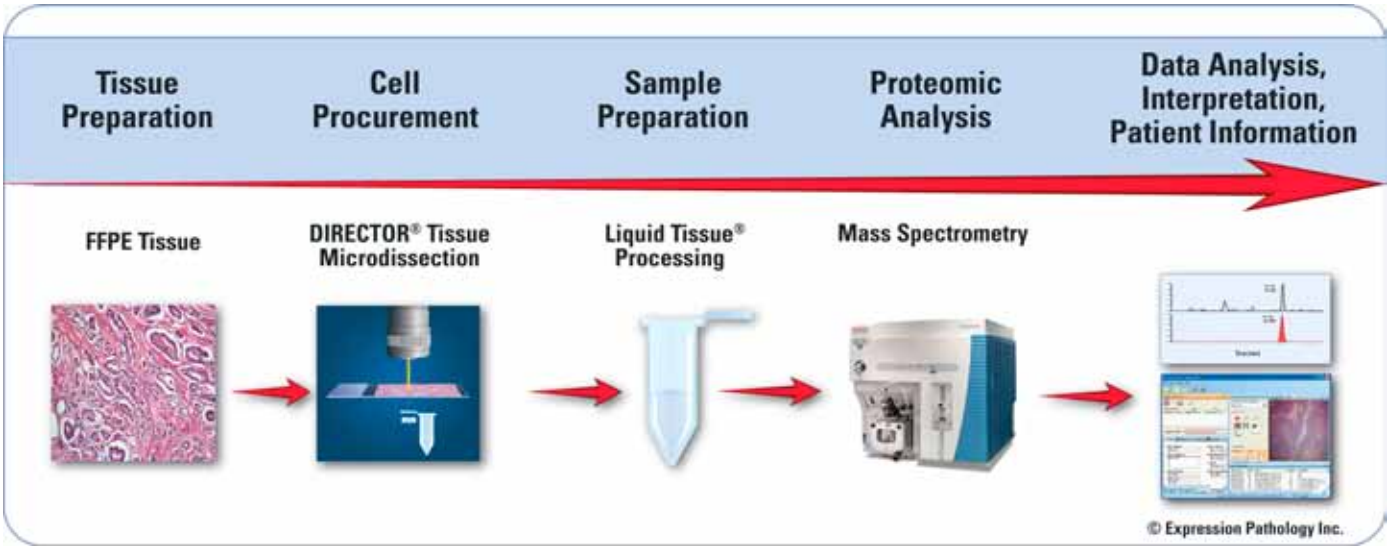
Liquid Tissue®-SRM assays are based on Expression Pathology's proprietary sample processing technologies and Selected Reaction Monitoring, a quantitative mass spectrometry technique. The assays are used to measure protein expression in standard formalin-fixed paraffin-embedded (FFPE) patient tissue samples from tissue blocks or needle biopsies.

Liquid Tissue processing makes it possible to analyze new or archival FFPE tissue samples for retrospective or prospective studies.

Automated microdissection using our patented DIRECTOR® laser microdissection slides makes possible quick and precise collection of targeted cells from a tissue sample.

The Liquid Tissue® reagents and protocol are then used to completely solublize the collected cells so their protein content can be analyzed by mass spectrometry (MS). The process yields a clear, dilutable, tryptic digest of the entire protein content - ready for MS analysis.

Mass spectrometry is a very sensitive and specific proteomic detection method. Selected Reaction Monitoring (SRM) is a mass spectrometry method for quantitation of proteins. It uses a sequence of a target peptide unique to the protein of interest, and is not dependent on antibody-epitope interaction. The selected peptide is detected and measured with a very high specificity.



Quantitative SRM Assays

Onco-plex	*Phospho-plex*
EGFR	pEGFR
HER2	
trunc HER2	
HER3	pHER3
cMET	pcMET
IGF-1R	
cSRC	pcSRC
BIM	pMEK
SPARC	pERK
EPHA2	p70S6K
DR5	

Analytical SRM Assays (Relative Data)

Signaling	*Warburg-plex*	*EMT-plex*	*Adeno/ SCC-plex*
pIGF-1R	CAV-1	E-Cadherin	Keratin 5
IRS-1	PGK1	β-Catenin	Keratin 7
pHER2	PKM2	Vimentin	Keratin 13
p110α	LDHA	S100A4	Keratin 14
pAKT	TPI	***Housekeeping***	Keratin 15
Breast-plex	PMI	HSP90A	Keratin 19
Ki67	FBPA	HSP90B	
ER	Enolase	GSK3β	
PR	GAPDH	Actin B	

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