Circulating glycopeptide markers differentiate between early- and late-stage epithelial ovarian cancer

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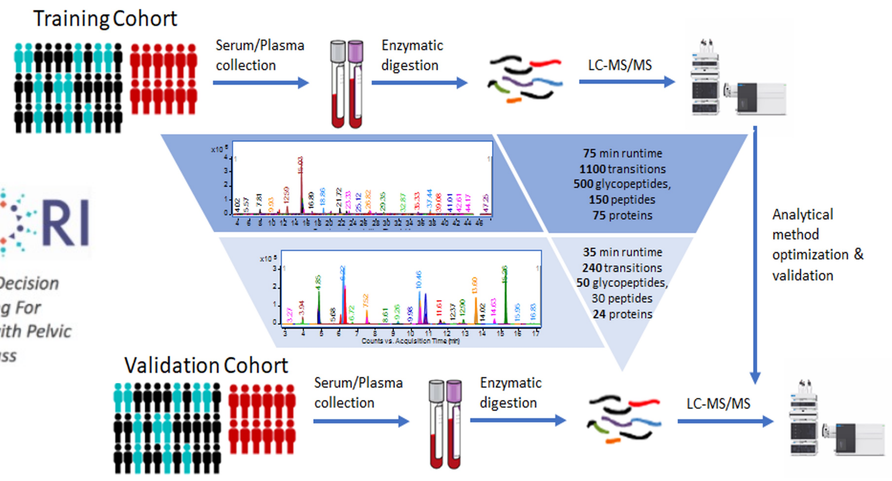
GLORI™ DATA AND REVERSE TRANSLATION

World's first glycoproteomic LDT test



GLORI

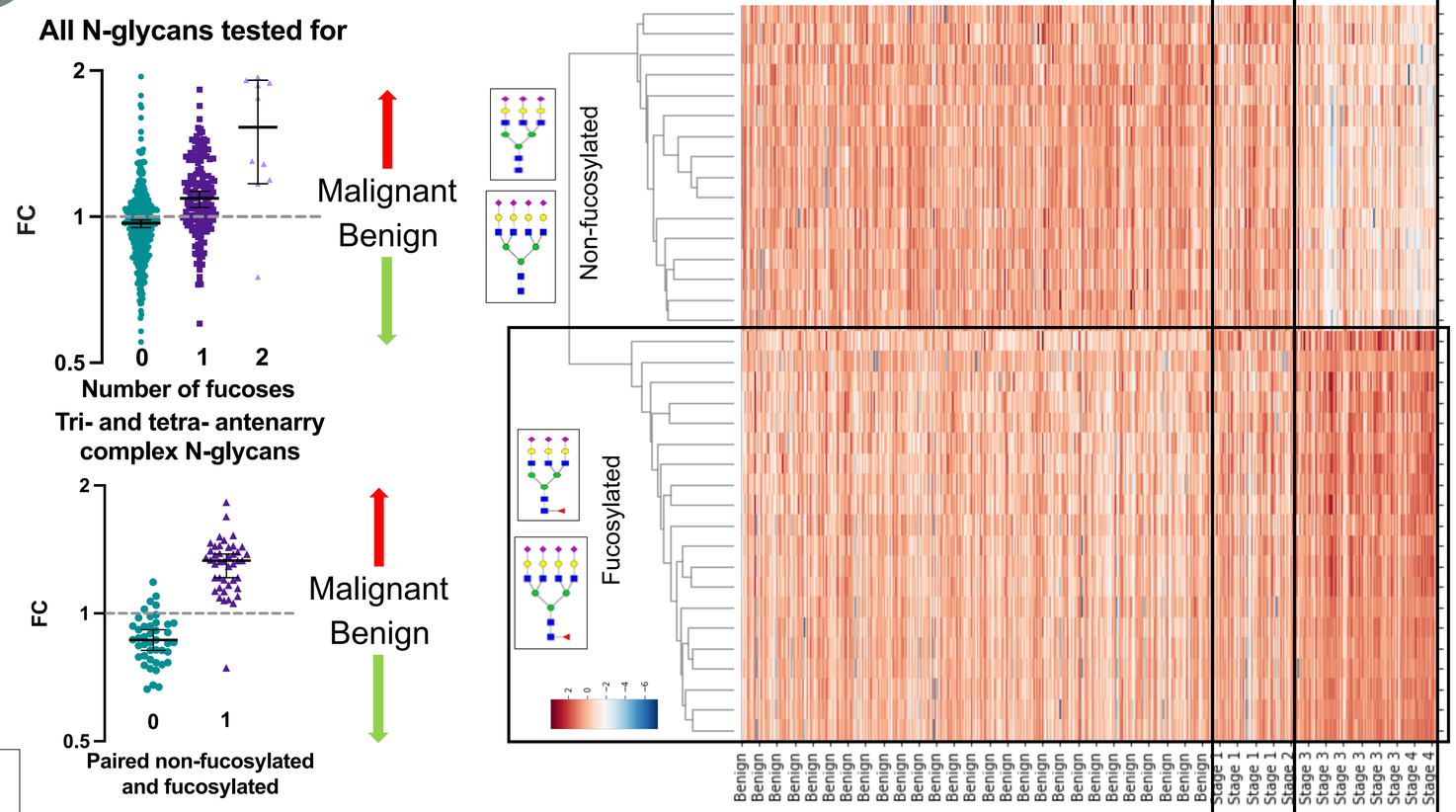
Clinical Decision Making For Women with Pelvic Mass

Liquid biopsy that differentiates benign and malignant pelvic masses

	Indivumed	VOCAL*
Study design	Retrospective	Prospective
Geographic location	Germany	USA, Southeast Asia
Number of patients	305	325
Benign	151 (49.5%)	220 (67.6%)
Malignant	154 (50.4%)	105 (16.9%)
Early stage	19 (6.2%)	55 (16.9%)
Late stage	83 (27.2%)	25 (7.6%)

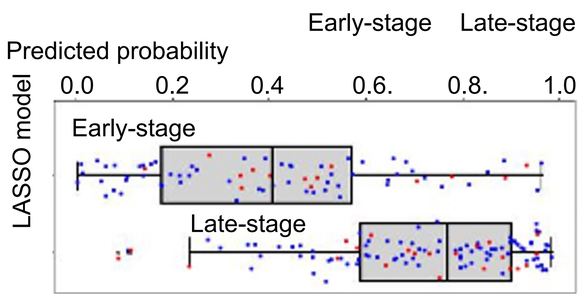
Clinical LC-MS/MS Data → Re-analysis with a focus on glycosylation trends → Functional implications → Forward translation

FUCOSYLATED TRI- & TETRA-ANTENNARY N-GLYCOPROTEINS IN CIRCULATION CORRELATES WITH LATE-STAGE OVARIAN CANCER

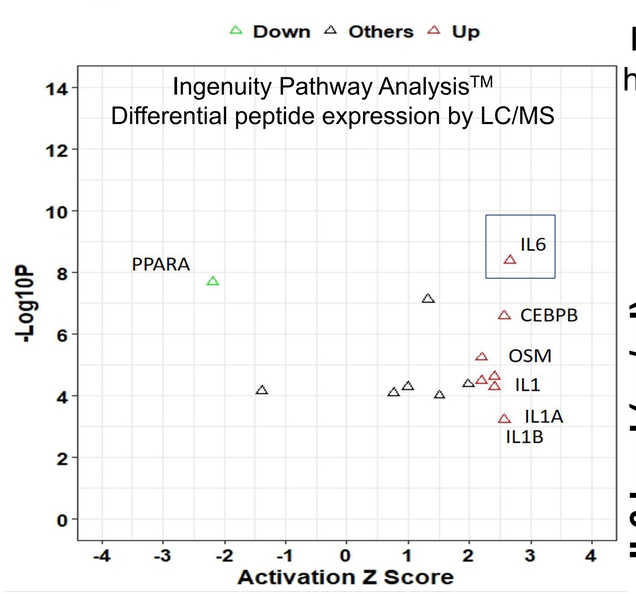


Pairs of tri-& tetra-antennary N-glycans differing by only a single fucose nicely stratify early-stage (stage I/II) and late-stage (metastatic disease of stage III/IV) OvCa

	Accuracy	Sensitivity	Specificity	Precision
• Train	0.753	0.802	0.700	0.712
• Test	0.778	0.864	0.714	0.769

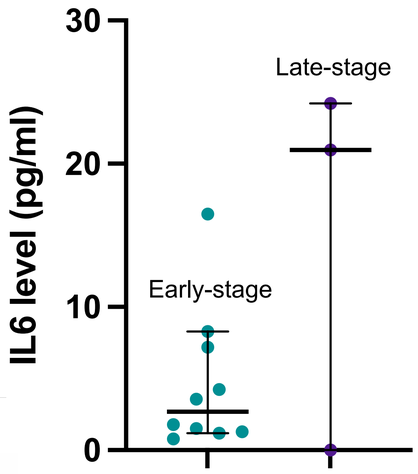


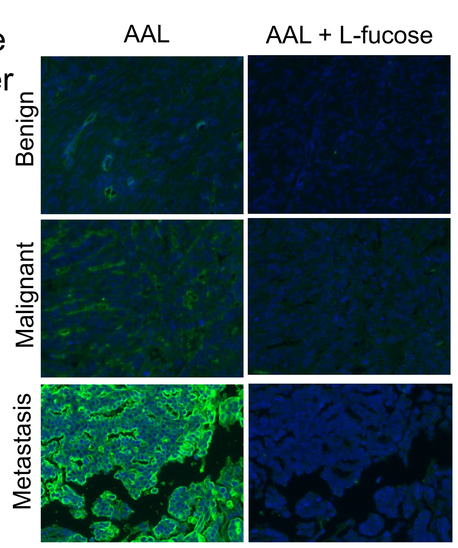
WHAT ARE THE FACTORS THAT DRIVE THESE GLYCOSYLATION CHANGES?



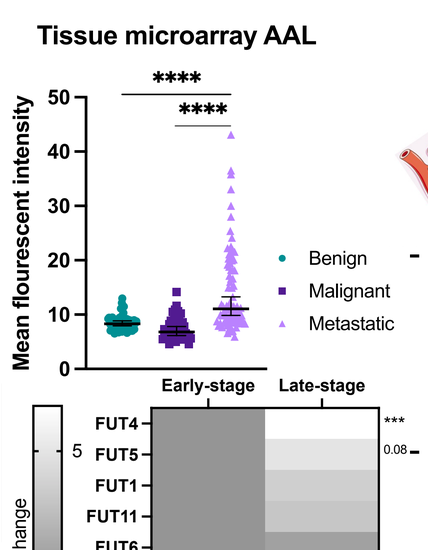
DOES LATE-STAGE OVARIAN CANCER TISSUE HAVE HIGHER LEVELS OF SURFACE FUCOSYLATION?

Initial data suggest IL-6 levels are higher in late-stage ovarian cancer
IL-6 could be a driver of the altered glycosylation



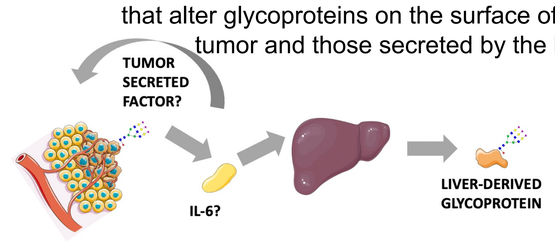


Bulk RNASeq n=5 early-stage vs n=6 late-stage Fucosyltransferases



CONCLUSIONS & HYPOTHESES

Hypothesized role of tumor-derived factors that alter glycoproteins on the surface of the tumor and those secreted by the liver



- The amount of circulating tri- & tetra-antennary N-glycoproteins with & without fucose differentiates between early-stage and late-stage OvCa
- Machine learning models can be developed to powerfully differentiate between early-stage and late-stage OvCa based on the aforesaid finding
- The surface of metastatic ovarian cancer deposits show higher levels of fucosylation when stained with the fluorescent lectin AAL

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*Interim analyses from May 2021 | LDT – Laboratory developed test | OvCa – Ovarian Cancer | Stage I & II are considered early-stage Ovarian cancer | Stage III & IV are considered metastatic disease/late-stage Ovarian cancer | FC – Fold change | AAL - Aleuria Aurantia Lectin (fucose-binding)