

## **Supplementary information**

### **Materials and methods**

#### **Serum sample collection**

Sera from healthy controls (Ctrl, 10 cases), untreated PDAC (PDAC, 9 cases), PDAC with surgical and drug treatment (PDAC-T, 11 cases) and untreated PDAC accompanied with other diseases (PDAC-D, 5 cases) were collected under a protocol approved by the Ethics Committee of Zhejiang Provincial People's Hospital. The written informed consent was provided to patients in advance. Individual clinical groups consisted of patients with the same PDAC stage or subtype. Sera from PDAC patients undergoing treatment were obtained after six treatment cycles. All sera were collected at the same time intervals. All samples were coded and randomized for the same processing protocols. Serum samples were pooled in each group for MS analysis.

#### **Cell culture**

Cell lines were purchased from ATCC. Normal pancreatic cells (hTERT-HPNE), primary pancreatic tumor cells (MIA PaCa-2) and metastatic pancreatic tumor cells (AsPC-1) were seeded into T75 flasks at  $1 \times 10^5$  cells/ml. Cells were incubated for 24 h at 37°C with 5% CO<sub>2</sub> in 90% DMEM (for hTERT-HPNE and MIA PaCa-2) or RPMI-1640 (for AsPC-1) (Procell, China), 10% fetal bovine serum (Thermo Fisher Scientific, US) and 1% penicillin/streptomycin (Beyotime, China). Before treatment with Sotorasib (AMG-510) (Selleck, US), cell media were changed into fresh serum-free media. Cells were further incubated for 24 h and then harvested and lysed in PBS RIPA buffer. N-glycoproteins in the culture media were collected and concentrated by a 3 kDa Vivaspin® Turbo 15 PES Centrifugal Concentrator (Millipore, US). The concentrated cell supernatant was stored at -80°C until further analysis.

#### **CCK-8 assay**

A volume of 100 µL cell suspension (approximately 5000 cells/well) was pipetted per well into a 96 well plate. Cells were incubated for 24h at 37 °C in 5% CO<sub>2</sub>. Then 10 µL of different concentrations of AMG-510 was added into each hole. The culture plate was incubated in the CO<sub>2</sub> incubator for 24h. After that, 10 µL of CCK-8 solution (APExBIO, US) was added into each hole. The culture plate was incubated in the incubator for 1-4 hours. Before reading the results, the culture plate was gently mixed on a shaker. Then an enzyme-linked immunosorbent assay was used to measure the absorbance at 450 nm.

**Table S1 Significantly changed N-glycans in pancreatic cell lines**

Glycan composition	Significance		
	H vs M	H vs A	M vs A
H5N2	*	**	***
H6N2	***	**	**
H7N2	**	ns	**
H8N2	*	ns	ns
H4N3	ns	ns	**
H5N4	**	ns	**
H6N3	*	ns	*
H6N5	*	ns	**
H7N5	***	***	***
H3N3F1	ns	ns	*
H4N3F1	*	ns	*
H4N4F1	ns	ns	*
H4N5F1	**	***	ns
H5N4F1	**	ns	*
H5N5F1	**	**	ns
H6N5F1	ns	ns	**
H6N6F1	***	ns	***
H7N6F1	ns	ns	*
S(3)1H5N4	***	**	***
S(6)2H5N4	**	ns	**
S(6)1H6N5	ns	ns	*
S(6)1S(3)1H5N4	***	ns	***
S(6)2H6N5	*	ns	**
S(6)1S(3)1H6N5	***	ns	***
S(6)2S(3)1H6N5	***	ns	***
S(6)1H5N4F1	***	ns	***
S(6)1H6N5F1	***	ns	***
S(3)1H4N3F1	***	ns	***
S(3)1H5N4F1	***	***	**
S(3)1H6N5F1	***	ns	***
S(6)2H7N5F1	***	ns	***

H: hTERT-HPNE; M: MIA PaCa-2; A: AsPC-1.

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001, ns: no significance. Data were analysed using one-way ANOVA with Tukey's Multiple Comparison Test.

**Table S2 Significantly changed N-glycans in MIA PaCa-2 cells treated with AMG-510**

Glycan composition	Significance		
	Ctrl vs A1	Ctrl vs A10	A1 vs A10
H5N2	***	***	ns
H6N2	***	***	ns
H7N2	***	***	ns
H8N2	***	***	ns
H9N2	***	***	*
H10N2	**	***	ns
H5N4	**	**	ns
H3N3F1	**	***	ns
H4N3F1	***	***	ns
H3N4F1	**	**	ns
H4N4F1	**	**	ns
H4N5F1	*	**	ns
H5N4F1	**	**	ns
H5N5F1	**	***	ns
H6N5F1	**	***	ns
H6N6F1	**	**	ns
H7N6F1	**	***	ns
S(6)1H5N4	**	***	ns
S(6)2H5N4	**	***	ns
S(6)1H5N4F1	***	***	ns
S(6)1H6N5F1	*	**	ns

A1: AMG-510 1 $\mu$ M; A10: AMG-510 10 $\mu$ M.

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001, ns: no significance. Data were analysed using one-way ANOVA with Tukey's Multiple Comparison Test.

**Table S3 Information of patients in the PDAC, PDAC-T and PDAC-D groups**

No.	Gender	Patient ID	Age	Diagnosis	Treatment
PDAC					
1	Male	90887615	36	Malignant PDAC with cholangiopancreatic duct dilatation	-
2	Male	11645099	56	Malignant PDAC	-
3	Male	90911434	71	Malignant PDAC with secondary malignant tumor of liver	-
4	Male	90914735	63	Malignant PDAC	-
5	Female	90913206	57	Malignant PDAC with pelvic metastasis	-
6	Female	90927304	74	Malignant PDAC with secondary malignant tumor of blood vessel	-
7	Female	90935469	60	Malignant PDAC with secondary malignant tumor of liver and abdominal cavity	-
8	Male	90945925	67	Malignant PDAC	-
9	Male	90953439	74	Malignant PDAC	-
PDAC-T					
1	Male	90795615	62	Malignant PDAC	Paclitaxel+ Gemcitabine
2	Female	90781541	52	Malignant PDAC	Paclitaxel+ Gemcitabine
3	Female	90885253	68	Malignant PDAC	Radical pancreatectomy; Paclitaxel+ Gemcitabine
4	Male	90887615	36	Malignant PDAC with cholangiopancreatic duct dilatation	Radical pancreaticoduodenectomy
5	Male	11645099	56	Malignant PDAC	Radical pancreaticoduodenectomy
6	Male	90911434	71	Malignant PDAC with secondary malignant tumor of liver	Fluzopari+ Oxaliplatin+ Irinotecan
7	Male	90547490	58	Malignant PDAC with secondary malignant tumor of liver	Tegio Capsules (Eswan)+ Paclitaxel
8	Male	90945925	67	Malignant PDAC	Radical pancreatectomy
9	Male	20238209	73	Malignant PDAC with secondary malignant tumor of blood vessel	Radical pancreaticoduodenectomy; Paclitaxel+ Gemcitabine
10	Male	90857858	80	Malignant PDAC with	Paclitaxel+ Gemcitabine+

				secondary malignant tumor of blood vessel	Cetuximab
11	Female	90885253	68	Malignant PDAC	Implantation of intravenous infusion port; Paclitaxel+ Gemcitabine
PDAC-D					
1	Male	90884839	72	Malignant PDAC with secondary malignant tumor of liver and abdominal cavity; high blood pressure; diabetes	-
2	Female	90919535	70	Malignant PDAC; diabetes; high blood pressure; cerebral embolism	-
3	Male	90916122	55	Malignant PDAC with secondary malignant tumor of blood vessel; gallstone with cholecystitis; persistent atrial fibrillation; gout	-
4	Female	90924165	55	Malignant PDAC; high blood pressure; fatty liver	-
5	Male	90937343	73	Malignant PDAC; diabetes; high blood pressure; hepatic cyst	-

**Table S4 Significantly changed N-glycans in human serum samples**

Glycan composition	Significance				
	C vs P	C vs P-T	C vs P-D	P vs P-T	P vs P-D
H11N2	*	ns	ns	*	**
H5N4	ns	ns	ns	*	ns
H3N4F1	*	ns	***	*	**
H4N4F1	ns	ns	**	*	ns
H3N5F1	ns	ns	**	**	ns
H5N4F1	ns	**	ns	***	ns
H4N5F1	ns	ns	ns	*	ns
H5N5F1	ns	ns	ns	*	ns
H4N6F2	ns	ns	ns	ns	*
S(6)1H5N4	*	ns	ns	**	***
S(6)2H5N4	ns	ns	*	ns	**
S(6)1S(3)1H5N4	ns	ns	ns	*	*
S(6)1H4N4F1	ns	ns	*	ns	ns
S(6)1H5N4F1	ns	ns	*	*	ns
S(6)2H5N4F1	ns	ns	ns	*	ns
S(3)1H4N5F2	**	ns	ns	**	**
S(3)1H6N3F2	***	ns	ns	***	***

C: healthy control; P: PDAC; P-T: PDAC with treatment; P-D: PDAC with other diseases.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , ns: no significance. Data were analysed using one-way ANOVA with Tukey's Multiple Comparison Test.

**Table S5 Accession numbers and protein names of N-glycoproteins identified in pancreatic cell lines**

Accession No.	Protein name	hTERT-HPNE	MIA PaCa-2	AsPC-1
O00461	Golgi integral membrane protein 4	√	×	×
O00469	Procollagen-lysine, 2-oxoglutarate 5-dioxygenase 2	√	×	×
O00584	Ribonuclease T2	×	×	√
O00592	Podocalyxin	×	√	×
O00754	Lysosomal alpha-mannosidase	√	√	×
O14672	Disintegrin and metalloproteinase domain-containing protein 10	×	√	√
O14773	Tripeptidyl-peptidase 1	√	√	√
O14786	Neuropilin-1	√	×	√
O15031	Plexin-B2	√	×	√
O15118	NPC intracellular cholesterol transporter 1	√	√	√
O15230	Laminin subunit alpha-5	×	√	√
O15321	Transmembrane 9 superfamily member 1	√	√	√
O15460	Prolyl 4-hydroxylase subunit alpha-2	√	×	×
O43556	Epsilon-sarcoglycan	√	×	√
O43657	Tetraspanin-6	√	×	√
O43688	Phospholipid phosphatase 2	×	×	√
O43852	Calumenin	√	√	√
O60245	Protocadherin-7	×	×	√
O60487	Myelin protein zero-like protein 2	×	×	√
O60568	Multifunctional procollagen lysine hydroxylase and glycosyltransferase LH3	√	√	√
O60635	Tetraspanin-1	×	√	√
O60637	Tetraspanin-3	√	√	√
O75071	EF-hand calcium-binding domain-containing protein 14	×	×	√
O75326	Semaphorin-7A	√	×	×
O75356	Ectonucleoside triphosphate diphosphohydrolase 5	√	√	√
O75503	Ceroid-lipofuscinosis neuronal protein 5	√	√	√
O75629	Protein CREG1	√	×	×
O75882	Attractin	√	√	√
O75976	Carboxypeptidase D	√	√	√
O94813	Slit homolog 2 protein	√	×	×
O94901	SUN domain-containing protein 1	√	√	√
O95084	Serine protease 23	√	×	×
O95297	Myelin protein zero-like protein 1	√	√	√
O95302	Peptidyl-prolyl cis-trans isomerase FKBP9	√	√	√
O95477	Phospholipid-transporting ATPase ABCA1	√	×	×

O95479	GDH/6PGL endoplasmic bifunctional protein	√	×	×
O95497	Pantetheinase	×	×	√
O96005	Cleft lip and palate transmembrane protein 1	√	√	√
P00450	Ceruloplasmin	√	√	×
P00533	Epidermal growth factor receptor	√	√	√
P00738	Haptoglobin	√	√	√
P01009	Alpha-1-antitrypsin	√	×	×
P01011	Alpha-1-antichymotrypsin	√	×	×
P01023	Alpha-2-macroglobulin	√	×	×
P01033	Metalloproteinase inhibitor 1	√	√	√
P01130	Low-density lipoprotein receptor	√	×	√
P01859	Immunoglobulin heavy constant gamma 2	√	√	√
P01876	Immunoglobulin heavy constant alpha 1	√	×	×
P02745	Complement C1q subcomponent subunit A	√	×	×
P02748	Complement component C9	√	×	×
P02751	Fibronectin	√	×	×
P02763	Alpha-1-acid glycoprotein 1	√	×	×
P02765	Alpha-2-HS-glycoprotein	√	×	×
P02786	Transferrin receptor protein 1	√	√	√
P04062	Lysosomal acid glucosylceramidase	√	√	√
P04156	Major prion protein	√	√	√
P04216	Thy-1 membrane glycoprotein	√	×	×
P04233	HLA class II histocompatibility antigen gamma chain	×	×	√
P04843	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1	√	×	×
P05026	Sodium/potassium-transporting ATPase subunit beta-1	×	×	√
P05067	Amyloid-beta precursor protein	√	×	√
P05106	Integrin beta-3	√	×	×
P05107	Integrin beta-2	×	×	√
P05121	Plasminogen activator inhibitor 1	√	×	×
P05362	Intercellular adhesion molecule 1	√	×	×
P05556	Integrin beta-1	√	√	√
P05997	Collagen alpha-2(V) chain	×	√	×
P06213	Insulin receptor	√	×	√
P06280	Alpha-galactosidase A	×	√	×
P06731	Carcinoembryonic antigen-related cell adhesion molecule 5	×	×	√
P06756	Integrin alpha-V	√	√	√
P06865	Beta-hexosaminidase subunit alpha	√	√	√
P07093	Glia-derived nexin	×	×	√
P07204	Thrombomodulin	×	×	√



P07339	Cathepsin D	√	√	√
P07602	Prosaposin	√	√	√
P07686	Beta-hexosaminidase subunit beta	√	×	×
P07711	Procathepsin L	√	√	√
P07858	Cathepsin B	√	×	×
P07942	Laminin subunit beta-1	√	×	√
P08069	Insulin-like growth factor 1 receptor	×	×	√
P08174	Complement decay-accelerating factor	√	√	√
P08195	4F2 cell-surface antigen heavy chain	√	√	√
P08236	Beta-glucuronidase	×	√	×
P08473	Neprilysin	√	×	×
P08581	Hepatocyte growth factor receptor	×	×	√
P08648	Integrin alpha-5	√	√	×
P08842	Steryl-sulfatase	×	×	√
P08962	CD63 antigen	√	√	√
P09619	Platelet-derived growth factor receptor beta	√	×	×
P10253	Lysosomal alpha-glucosidase	√	√	√
P10321	HLA class I histocompatibility antigen, C alpha chain	×	×	√
P10586	Receptor-type tyrosine-protein phosphatase F	√	√	×
P10619	Lysosomal protective protein	√	×	√
P10909	Clusterin	√	√	√
P11047	Laminin subunit gamma-1	√	×	√
P11117	Lysosomal acid phosphatase	√	√	√
P11166	Solute carrier family 2, facilitated glucose transporter member 1	√	√	√
P11279	Lysosome-associated membrane glycoprotein 1	√	√	√
P11717	Cation-independent mannose-6-phosphate receptor	√	√	√
P12109	Collagen alpha-1(VI) chain	√	×	×
P12110	Collagen alpha-2(VI) chain	√	√	×
P12111	Collagen alpha-3(VI) chain	√	×	×
P13473	Lysosome-associated membrane glycoprotein 2	√	√	√
P13611	Versican core protein	×	×	√
P13612	Integrin alpha-4	√	×	×
P13674	Prolyl 4-hydroxylase subunit alpha-1	√	√	√
P13688	Carcinoembryonic antigen-related cell adhesion molecule 1	×	×	√
P13726	Tissue factor	×	×	√
P13987	CD59 glycoprotein	√	×	√
P14384	Carboxypeptidase M	×	×	√
P14625	Endoplasmin	√	√	√
P15144	Aminopeptidase N	√	×	√
P15260	Interferon gamma receptor 1	×	×	√

P15586	N-acetylglucosamine-6-sulfatase	√	√	√
P16070	CD44 antigen	√	√	√
P16278	Beta-galactosidase	√	√	√
P16422	Epithelial cell adhesion molecule	×	×	√
P17301	Integrin alpha-2	√	×	√
P17936	Insulin-like growth factor-binding protein 3	×	×	√
P18564	Integrin beta-6	×	×	√
P19022	Cadherin-2	√	×	×
P19075	Tetraspanin-8	×	×	√
P19224	UDP-glucuronosyltransferase 1-6	×	×	√
P19256	Lymphocyte function-associated antigen 3	×	√	×
P19440	Glutathione hydrolase 1 proenzyme	×	√	√
P19801	Amiloride-sensitive amine oxidase [copper-containing]	×	×	√
P20273	B-cell receptor CD22	×	√	×
P20645	Cation-dependent mannose-6-phosphate receptor	√	√	√
P21589	5'-nucleotidase	√	√	√
P21860	Receptor tyrosine-protein kinase erbB-3	×	×	√
P22792	Carboxypeptidase N subunit 2	√	×	×
P23229	Integrin alpha-6	√	×	√
P24394	Interleukin-4 receptor subunit alpha	√	×	√
P24821	Tenascin	√	×	√
P25116	Proteinase-activated receptor 1	√	√	×
P26006	Integrin alpha-3	√	√	√
P27169	Serum paraoxonase/arylesterase 1	√	×	×
P27487	Dipeptidyl peptidase 4	×	×	√
P27701	CD82 antigen	×	×	√
P28799	Progranulin	√	×	×
P29317	Ephrin type-A receptor 2	√	√	√
P29323	Ephrin type-B receptor 2	×	×	√
P30533	Alpha-2-macroglobulin receptor-associated protein	×	√	×
P30825	High affinity cationic amino acid transporter 1	√	√	√
P34810	Macrosialin	√	√	√
P35442	Thrombospondin-2	×	×	√
P35555	Fibrillin-1	√	×	×
P35613	Basigin	√	√	√
P36713	Pre-hexon-linking protein VIII	×	×	√
P36941	Tumor necrosis factor receptor superfamily member 3	×	×	√
P38571	Lysosomal acid lipase/cholesteryl ester hydrolase	√	√	√
P40189	Interleukin-6 receptor subunit beta	√	×	×
P40199	Carcinoembryonic antigen-related cell adhesion molecule 6	×	×	√

P41221	Protein Wnt-5a	√	×	×
P42892	Endothelin-converting enzyme 1	√	√	√
P43251	Biotinidase	√	√	√
P43308	Translocon-associated protein subunit beta	√	×	√
P46059	Solute carrier family 15 member 1	×	×	√
P46977	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3A	√	√	√
P48509	CD151 antigen	√	×	×
P48723	Heat shock 70 kDa protein 13	√	√	√
P48960	Adhesion G protein-coupled receptor E5	√	√	√
P49761	Dual specificity protein kinase CLK3	×	√	×
P50895	Basal cell adhesion molecule	×	√	√
P50897	Palmitoyl-protein thioesterase 1	√	√	√
P51690	Arylsulfatase L	√	×	√
P52803	Ephrin-A5	×	×	√
P53634	Dipeptidyl peptidase 1	√	×	√
P54289	Voltage-dependent calcium channel subunit alpha-2/delta-1	√	×	×
P54709	Sodium/potassium-transporting ATPase subunit beta-3	√	√	√
P54803	Galactocerebrosidase	×	×	√
P55058	Phospholipid transfer protein	×	×	√
P55268	Laminin subunit beta-2	√	×	×
P55290	Cadherin-13	√	×	×
P56199	Integrin alpha-1	√	×	×
P60709	Actin, cytoplasmic 1	√	√	√
P61916	NPC intracellular cholesterol transporter 2	√	√	√
P78357	Contactin-associated protein 1	√	√	×
P78504	HUMAN Protein jagged-1	√	√	√
P80188	Neutrophil gelatinase-associated lipocalin	×	×	√
P98160	Basement membrane-specific heparan sulfate proteoglycan core protein	√	×	√
P98172	Ephrin-B1	×	×	√
Q01459	Di-N-acetylchitobiase	×	×	√
Q02083	N-acylethanolamine-hydrolyzing acid amidase	√	×	√
Q02487	Desmocollin-2	×	×	√
Q02809	Procollagen-lysine,2-oxoglutarate 5-dioxygenase 1	√	√	√
Q03405	Urokinase plasminogen activator surface receptor	×	×	√
Q04912	Macrophage-stimulating protein receptor	×	×	√
Q06481	Amyloid-like protein 2	√	√	√
Q07954	Prolow-density lipoprotein receptor-related protein 1	√	×	×
Q08380	Galectin-3-binding protein	√	√	√

Q08722	Leukocyte surface antigen CD47	√	√	√
Q08AM6	Protein VAC14	×	√	×
Q10472	Polypeptide N-acetylgalactosaminyltransferase 1	×	×	√
Q12797	Aspartyl/asparaginyl beta-hydroxylase	√	√	√
Q12841	Follistatin-related protein 1	√	×	×
Q12864	Cadherin-17	×	×	√
Q12884	Prolyl endopeptidase FAP	√	×	×
Q12907	Vesicular integral-membrane protein VIP36	√	√	√
Q12913	Receptor-type tyrosine-protein phosphatase eta	√	×	√
Q13308	Inactive tyrosine-protein kinase 7	√	√	×
Q13332	Receptor-type tyrosine-protein phosphatase S	×	×	√
Q13421	Mesothelin	×	×	√
Q13433	Zinc transporter ZIP6	√	√	√
Q13444	Disintegrin and metalloproteinase domain-containing protein 15	×	×	√
Q13510	Acid ceramidase	√	×	√
Q13586	Stromal interaction molecule 1	√	√	√
Q13641	Trophoblast glycoprotein	√	√	√
Q13740	CD166 antigen	√	×	×
Q13822	Ectonucleotide pyrophosphatase/phosphodiesterase family member 2	√	×	×
Q14108	Lysosome membrane protein 2	√	√	√
Q14126	Desmoglein-2	√	×	√
Q14517	Protocadherin Fat 1	×	×	√
Q14624	Inter-alpha-trypsin inhibitor heavy chain H4	√	×	×
Q14956	Transmembrane glycoprotein NMB	√	×	×
Q15043	Metal cation symporter ZIP14	×	×	√
Q15165	Serum paraoxonase/arylesterase 2	√	√	√
Q15223	Nectin-1	×	×	√
Q15262	Receptor-type tyrosine-protein phosphatase kappa	√	×	√
Q15293	Reticulocalbin-1	√	√	√
Q15904	V-type proton ATPase subunit S1	√	√	√
Q16563	Synaptophysin-like protein 1	√	√	√
Q16585	Beta-sarcoglycan	√	×	×
Q16610	Extracellular matrix protein 1	√	×	×
Q16706	Alpha-mannosidase 2	√	×	√
Q16787	Laminin subunit alpha-3	×	×	√
Q30201	Hereditary hemochromatosis protein	√	√	√
Q32P28	Prolyl 3-hydroxylase 1	√	√	×
Q3L8U1	Chromodomain-helicase-DNA-binding protein 9	√	×	×
Q3T906	N-acetylglucosamine-1-phosphotransferase subunits alpha/beta	×	×	√
Q495W5	Alpha-(1,3)-fucosyltransferase 11	√	×	×

Q4G148	Glucoside xylosyltransferase 1	√	×	×
Q4KMQ2	Anoctamin-6	×	×	√
Q4ZIN3	Membralin	×	×	√
Q5JPE7	Nodal modulator 2	√	√	√
Q5JS37	NHL repeat-containing protein 3	×	×	√
Q5JSZ5	Protein PRRC2B	√	×	√
Q5R3F8	Protein phosphatase 1 regulatory subunit 29	×	×	√
Q5SWX8	Protein odr-4 homolog	√	×	×
Q5T4B2	Inactive glycosyltransferase 25 family member 3	√	×	×
Q5T601	Adhesion G-protein coupled receptor F1	×	×	√
Q5VW38	Protein GPR107	√	×	√
Q5ZPR3	CD276 antigen	√	√	√
Q685J3	Mucin-17	×	×	√
Q68CP4	Heparan-alpha-glucosaminide N-acetyltransferase	√	×	×
Q68CQ1	Maestro heat-like repeat-containing protein family member 7	×	×	√
Q68CQ7	Glycosyltransferase 8 domain-containing protein 1	√	×	×
Q6AZY7	Scavenger receptor class A member 3	√	×	×
Q6EMK4	Vasorin	√	×	×
Q6P179	Endoplasmic reticulum aminopeptidase 2	√	√	×
Q6P4A8	Phospholipase B-like 1	×	√	√
Q6P4E1	Protein GOLM2	√	×	√
Q6P4Q7	Metal transporter CNNM4	√	√	√
Q6PCB8	Embigin	√	×	×
Q6PIU2	Neutral cholesterol ester hydrolase 1	√	√	√
Q6UVK1	Chondroitin sulfate proteoglycan 4	√	×	×
Q6UXD5	Seizure 6-like protein 2	×	√	√
Q6V0I7	Protocadherin Fat 4	√	×	×
Q6YHK3	CD109 antigen	√	√	√
Q6ZP01	RNA-binding protein 44	×	×	√
Q6ZRP7	Sulfhydryl oxidase 2	√	√	√
Q6ZXV5	Protein O-mannosyl-transferase TMTC3	√	×	√
Q70UQ0	Inhibitor of nuclear factor kappa-B kinase-interacting protein	√	√	√
Q7KYR7	Butyrophilin subfamily 2 member A1	√	√	√
Q7L0J3	Synaptic vesicle glycoprotein 2A	√	×	×
Q7LGA3	Heparan sulfate 2-O-sulfotransferase 1	√	√	√
Q7Z388	Probable C-mannosyltransferase DPY19L4	×	×	√
Q7Z4F1	Low-density lipoprotein receptor-related protein 10	√	×	×
Q7Z4H8	Protein O-glycosyltransferase 3	√	√	√
Q7Z7L1	Schlafen family member 11	√	√	×
Q7Z7M0	Multiple epidermal growth factor-like domains protein 8	×	√	×

Q7Z7M9	Polypeptide N-acetylgalactosaminyltransferase 5	√	×	√
Q86SJ2	Amphoterin-induced protein 2	×	×	√
Q86SQ4	Adhesion G-protein coupled receptor G6	×	√	×
Q86WC4	Osteopetrosis-associated transmembrane protein 1	√	×	×
Q8IV08	5'-3' exonuclease PLD3	√	√	×
Q8IWA5	Choline transporter-like protein 2	√	×	×
Q8IWK6	Adhesion G protein-coupled receptor A3	×	×	√
Q8IWU5	Extracellular sulfatase Sulf-2	×	×	√
Q8N0Z9	V-set and immunoglobulin domain-containing protein 10	×	×	√
Q8N697	Solute carrier family 15	√	×	√
Q8N766	ER membrane protein complex subunit 1	√	√	√
Q8N8Z6	Discoidin, CUB and LCCL domain-containing protein 1	√	√	√
Q8NBJ4	Golgi membrane protein 1	√	√	√
Q8NBJ5	Procollagen galactosyltransferase 1	√	√	√
Q8NBK3	Formylglycine-generating enzyme	×	×	√
Q8NBL1	Protein O-glucosyltransferase 1	√	√	√
Q8NBN3	Transmembrane protein 87A	√	×	√
Q8NC42	E3 ubiquitin-protein ligase RNF149	√	×	√
Q8NCC3	Phospholipase A2 group XV	√	×	√
Q8NEY1	Neuron navigator 1	×	√	√
Q8NFQ8	Torsin-1A-interacting protein 2	√	√	√
Q8NFT8	Delta and Notch-like epidermal growth factor-related receptor	√	√	×
Q8NHP8	Putative phospholipase B-like 2	√	√	√
Q8TC59	Piwi-like protein 2	×	√	×
Q8TCJ2	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3B	√	√	√
Q8TCT8	Signal peptide peptidase-like 2A	√	×	√
Q8WTV0	Scavenger receptor class B member 1	√	×	×
Q8WVQ1	Soluble calcium-activated nucleotidase 1	√	√	√
Q8WWB7	Glycosylated lysosomal membrane protein	√	√	√
Q8WWI1	LIM domain only protein 7	×	×	√
Q92508	Piezo-type mechanosensitive ion channel component 1	√	√	√
Q92542	Nicastrin	√	√	√
Q92626	Peroxidasin homolog	√	×	×
Q92673	Sortilin-related receptor	×	×	√
Q92791	Endoplasmic reticulum protein SC65	√	√	×
Q92823	Neuronal cell adhesion molecule	×	×	√
Q92854	Semaphorin-4D	×	√	×
Q92859	Neogenin	√	×	√

Q92896	Golgi apparatus protein 1	×	×	√
Q969V3	Nicalin	√	√	√
Q96AY3	Peptidyl-prolyl cis-trans isomerase FKBP10	√	√	×
Q96D15	Reticulocalbin-3	√	×	×
Q96HE7	ERO1-like protein alpha	×	×	√
Q96J42	Thioredoxin domain-containing protein 15	√	√	√
Q96J84	Kin of IRRE-like protein 1	√	√	√
Q96JJ7	Protein disulfide-isomerase TMX3	√	×	√
Q96K49	Transmembrane protein 87B	×	×	√
Q96KA5	Cleft lip and palate transmembrane protein 1-like protein	√	√	×
Q96NT5	Proton-coupled folate transporter	×	×	√
Q96PB1	N-acetylneuraminase 9-O-acetyltransferase	×	×	√
Q96RQ1	Endoplasmic reticulum-Golgi intermediate compartment protein 2	×	×	√
Q96S52	GPI transamidase component PIG-S	×	×	√
Q96T83	Sodium/hydrogen exchanger 7	√	√	×
Q99523	Sortilin	√	×	×
Q99538	Legumain	×	√	√
Q99571	P2X purinoceptor 4	√	√	√
Q99650	Oncostatin-M-specific receptor subunit beta	√	×	×
Q99715	Collagen alpha-1(XII) chain	√	×	×
Q99808	Equilibrative nucleoside transporter 1	×	√	√
Q99985	Semaphorin-3C	×	√	√
Q9BU23	Lipase maturation factor 2	√	×	×
Q9BXP2	Solute carrier family 12 member 9	×	×	√
Q9C0A6	Histone-lysine N-methyltransferase SETD5	×	×	√
Q9C0H2	Protein tweety homolog 3	√	√	√
Q9GZU1	Mucolipin-1	√	×	×
Q9H0V9	VIP36-like protein	√	×	×
Q9H0X4	Protein FAM234A	√	√	√
Q9H173	Nucleotide exchange factor SIL1	√	×	√
Q9H3G5	Probable serine carboxypeptidase CPVL	×	×	√
Q9H5V8	CUB domain-containing protein 1	×	√	√
Q9H6B4	CXADR-like membrane protein	×	×	√
Q9H6X2	Anthrax toxin receptor 1	√	×	×
Q9H7M9	V-type immunoglobulin domain-containing suppressor of T-cell activation	×	×	√
Q9HAT2	Sialate O-acetyltransferase	×	×	√
Q9HBB8	Cadherin-related family member 5	×	×	√
Q9HBW9	Adhesion G protein-coupled receptor L4	√	×	×
Q9HC29	Nucleotide-binding oligomerization domain-containing protein 2	×	√	×

Q9HC56	Protocadherin-9	√	×	×
Q9HCB6	Spondin-1	×	×	√
Q9HD45	Transmembrane 9 superfamily member 3	√	√	√
Q9HDC9	Adipocyte plasma membrane-associated protein	√	√	√
Q9NPR2	Semaphorin-4B	×	×	√
Q9NTN9	Semaphorin-4G	×	×	√
Q9NU53	Glycoprotein integral membrane protein 1	√	×	√
Q9NUM4	Transmembrane protein 106B	√	√	√
Q9NV96	Cell cycle control protein 50A	√	√	√
Q9NWM8	Peptidyl-prolyl cis-trans isomerase FKBP14	√	√	√
Q9NX62	Golgi-resident adenosine 3',5'-bisphosphate 3'-phosphatase	√	√	√
Q9NXC5	GATOR complex protein MIOS	√	×	×
Q9NXH8	Torsin-4A	√	√	√
Q9NY35	Claudin domain-containing protein 1	√	×	×
Q9NZQ7	Programmed cell death 1 ligand 1	√	×	×
Q9P273	Teneurin-3	√	×	×
Q9P2E5	Chondroitin sulfate glucuronyltransferase	√	×	×
Q9UBG0	C-type mannose receptor 2	√	×	×
Q9UBP4	Dickkopf-related protein 3	√	×	×
Q9UBS4	DnaJ homolog subfamily B member 11	√	√	√
Q9UBV2	Protein sel-1 homolog	√	√	√
Q9UH99	SUN domain-containing protein 2	√	√	√
Q9UHG3	Prenylcysteine oxidase 1	√	√	√
Q9UHL4	Dipeptidyl peptidase 2	×	×	√
Q9UHN6	Cell surface hyaluronidase	√	×	×
Q9UIW2	Plexin-A1	√	√	×
Q9UMF0	Intercellular adhesion molecule 5	×	√	×
Q9UN70	Protocadherin gamma-C3	√	×	×
Q9Y2C3	Beta-1,3-galactosyltransferase 5	×	×	√
Q9Y2E5	Epididymis-specific alpha-mannosidase	√	×	√
Q9Y487	V-type proton ATPase 116 kDa subunit a2	√	√	√
Q9Y4D7	Plexin-D1	√	×	√
Q9Y4L1	Hypoxia up-regulated protein 1	√	√	√
Q9Y5Y6	Suppressor of tumorigenicity 14 protein	×	×	√
Q9Y639	Neuroplastin	√	√	√
Q9Y646	Carboxypeptidase Q	√	×	×
Q9Y6A1	Protein O-mannosyl-transferase 1	×	√	×
Q9Y6C2	EMILIN-1	√	×	×
Q9Y6Q6	Tumor necrosis factor receptor superfamily member 11A	×	×	√

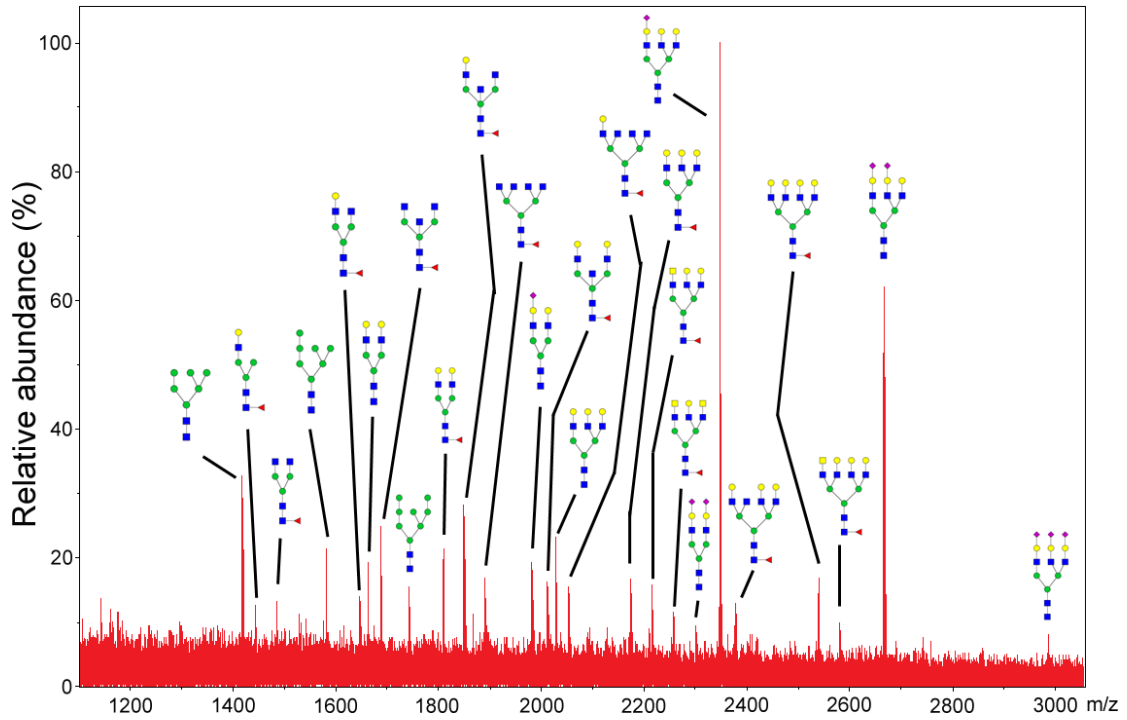
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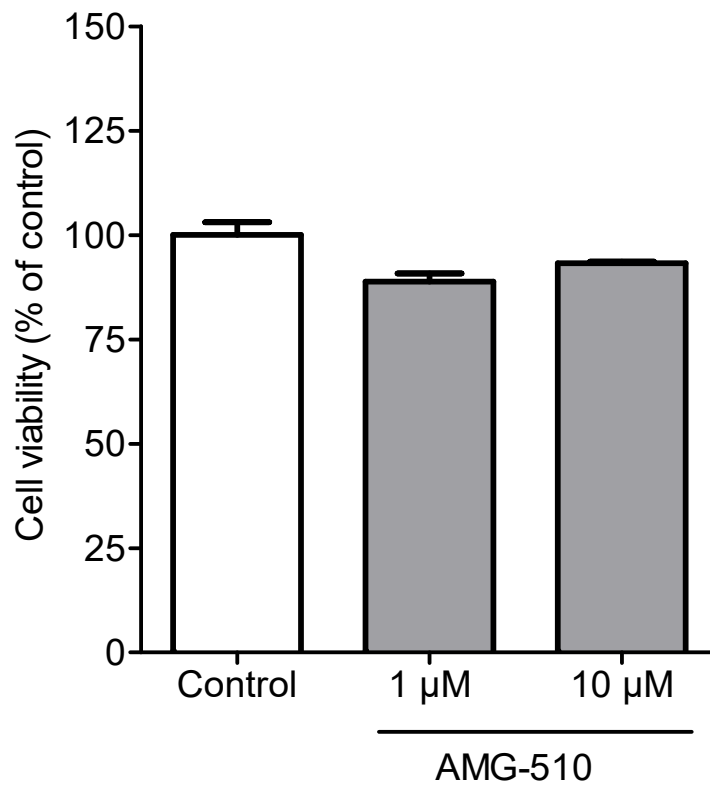
**Table S6 Accession numbers of N-glycoproteins shared between pancreatic cell lines and human serum.**

H & S	M & S	A & S	H & M & S	H & A & S	H & M & A & S
P01009	Q7Z7M0	O95497	P00450	P15144	O75882
P01011		P13688	P10586	Q12913	P00738
P01023		P17936			P01859
P01876		P55058			P02786
P02745		P80188			P07339
P02748		Q01459			P07602
P02751		Q9HBB8			P10909
P02763					P11279
P02765					P11717
P05362					P13473
P22792					P16070
P27169					P43251
P40189					Q08380
P55290					Q9HDC9
Q14624					Q9UHG3
Q16610					
Q6EMK4					
Q9H6X2					

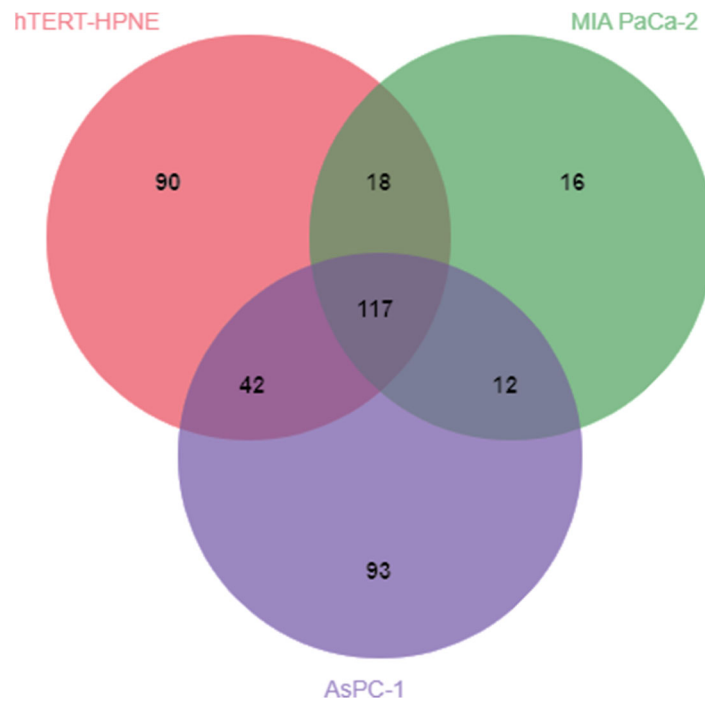
H: hTERT-HPNE; M: MIA PaCa-2; A: AsPC-1; S: serum.



**Fig. S1 MALDI-MS spectra of N-glycans secreted in the culture media by the pancreatic cell line MIA PaCa-2. Numbers above the peaks represent the corresponding m/z value. Different monosaccharide units are denoted by colored shapes (red triangle, fucose; green circle, mannose; yellow circle, galactose; blue square, N-acetyl glucosamine; purple diamond, sialic acid).**



**Fig. S2** Cell viability of MIA PaCa-2 treated with and without AMG-510 for 24h (n=3).



**Fig. S3** Venn diagram of N-glycoproteins identified in the three pancreatic cell lines.

**Supplementary raw MS data**

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The file extraction code is 6wc0.