

Supplementary Table S1. Supporting information of each antibody.

| Antibodies (abbreviation) | Source | Manufacturer | City, etc | Catalog number |
|---|--------|---------------------------|-----------------------|----------------|
| Insulin receptor (INSR) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0681R-TR |
| BAG family molecular chaperone regulator 1 (BAG1) | Rabbit | Novus Biologicals | Littleton, CO, USA | NB100-56081SS |
| Integrin beta-3 (ITGB3) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0342R-TR |
| Transforming growth factor beta-1 proprotein (TGFB1) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-4908R-TR |
| Insulin-like growth factor-binding protein 3 (IGFBP3) | Rabbit | GeneTex | Irvine, CA, USA | GTX100454 |
| Integrin alpha-1 (ITGA1) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-2095R-TR |
| Laminin subunit alpha-5 (LAMA5) | Rabbit | EpiGentek | Farmingdale, NY, USA | #A59602 |
| Nectin-2 (NECTIN2) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-2679R-TR |
| Extracellular matrix protein 1 (ECM1) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0776R-TR |
| Hepatocyte nuclear factor 4-alpha (HNF4A) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-3828R-TR |
| Nuclear factor NF-kappa-B1 p105/p50 (NFκB1) | Rabbit | Cell Signaling technology | Danvers, MA, USA | #12540 |
| Nuclear factor NF-kappa-B2 p100/p52 (NFκB2) | Rabbit | Cell Signaling technology | Danvers, MA, USA | #3017 |
| Clusterin α (CLUα) | Rabbit | GeneTex | Irvine, CA, USA | GTX134435 |
| Insulin-like growth factor-binding protein 2 (IGFBP2) | Rabbit | GeneTex | Irvine, CA, USA | GTX128977 |
| Integrin alpha-3 (ITGA3) | Rabbit | Affinity Biosciences | Cincinnati, OH, USA | AF5182 |
| Collagen alpha-1(XVII) chain (COL17A1) | Rabbit | AVIVA System Biology | San Diego, CA, USA | OACD02624 |
| CD44 antigen (CD44) | Mouse | Thermo Fisher Scientific | Carlsbad, CA, USA | #MS-668-P0 |
| Cdc42 effector protein 5 (CDC42EP5) | Rabbit | Novus Biologicals | Littleton, CO, USA | NBP1-91773 |
| Metalloproteinase inhibitor 1 (TIMP1) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0415R-TR |
| Neutrophil gelatinase-associated lipocalin (LCN2) | Rabbit | Proteintech | Rosemont, IL, USA | 26991-1-AP |
| Disintegrin and metalloproteinase domain-containing protein 17 (ADAM17) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-4236R-TR |
| Midkine (MDK) | Rabbit | GeneTex | Irvine, CA, USA | GTX116089 |
| Epithelial cell adhesion molecule (EpCAM) | Mouse | EXBIO Antibodies | Praha, Czech Republic | 11-581-C025 |

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|---|--------|---------------------------|----------------------|-------------|
| Dystroglycan 1 (DAG1) | Rabbit | GeneTex | Irvine, CA, USA | GTX124225 |
| Matrix metalloproteinase-9 (MMP9) | Mouse | Thermo Fisher Scientific | Carlsbad, CA, USA | #MS-817-P0 |
| Mucin-5AC (MUC5AC) | Mouse | Novus Biologicals | Littleton, CO, USA | NBP2-15196 |
| Heme oxygenase 1 (HO1) | Rabbit | StressMarq Biosciences | Victoria, BC, Canada | SPC-112 C/D |
| FAS-associated factor 1 (FAF1) | Rabbit | Novus Biologicals | Littleton, CO, USA | NBP1-76745 |
| Desmin (DES) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-1026R-TR |
| Tescalcin (TESC) | Rabbit | Novus Biologicals | Littleton, CO, USA | NBP2-94798 |
| Ras association (RalGDS/AF-6) domain family (N-terminal) member 9 (RASSF9) | Rabbit | ATLAS Antibodies | Stockholm, Sweden | HPA039428 |
| PDZ and LIM domain 3 (PDLIM3) | Rabbit | GeneTex | Irvine, CA, USA | GTX119708 |
| integrin alpha 7 (ITGA7) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-1816R-TR |
| insulin-like growth factor 2 (IGF2) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0015R-TR |
| Integrin alpha-5 (Integrin α 5) | Rabbit | GeneTex | Irvine, CA, USA | GTX130705 |
| Integrin beta-5 (Integrin β 1) | Rabbit | GeneTex | Irvine, CA, USA | GTX128839 |
| Phosphorylated focal adhesion kinase(Tyr ³⁹⁷) {pFAK(Tyr ³⁹⁷)} | Rabbit | GeneTex | Irvine, CA, USA | GTX24803 |
| Phosphorylated Paxillin(Tyr ³¹) {pPaxillin(Tyr ³¹)} | Rabbit | Novex | San Diego, CA, USA | 44-720G |
| Phosphorylated protein kinase B(Ser ⁴⁷³) {pAKT(Ser ⁴⁷³)} | Rabbit | Cell Signaling technology | Danvers, MA, USA | #4060 |
| Phosphorylated protein kinase B(Thr ³⁰⁸) {pAKT(Thr ³⁰⁸)} | Rabbit | Cell Signaling technology | Danvers, MA, USA | #2965 |
| Signal transducer and activator of transcription 3(Ser ⁷²⁷) {pSTAT3(Ser ⁷²⁷)} | Rabbit | Cell Signaling technology | Danvers, MA, USA | #9134 |
| Transforming growth factor β 1 (TGF- β 1) | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-0086R |
| Phosphorylated-Smad2(Ser ^{465/467}) {pSmad2(Ser ^{465/467})} | Rabbit | GeneTex | Irvine, CA, USA | GTX133614 |
| Phosphorylated-MAPK/ERK kinase 1/2(Ser ^{217/221}) {pMEK1/2(Ser ^{217/221})} | Rabbit | Cell Signaling technology | Danvers, MA, USA | #9154 |
| Phosphorylated-Extracellular-regulated kinase 1/2(Thr ²⁰² /Tyr ²⁰⁴) {pERK1/2(Thr ²⁰² /Tyr ²⁰⁴)} | Rabbit | Cell Signaling technology | Danvers, MA, USA | #4370 |

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|---|-----|--------|---------------------------|-------------------|--------------|
| Phosphorylated-p38(Thr ¹⁸⁰ /Tyr ¹⁸²) | {p- | Rabbit | GeneTex | Irvine, CA, USA | GTX133460 |
| Phosphorylated-JNK(Thr ¹⁸³ /Tyr ¹⁸⁵) | {p- | Rabbit | GeneTex | Irvine, CA, USA | GTX635799 |
| β -Catenin | | Rabbit | Cell Signaling technology | Danvers, MA, USA | #9582 |
| c-MYC | | Rabbit | Cell Signaling technology | Danvers, MA, USA | #9402 |
| Cyclin D1 | | Rabbit | Cell Signaling technology | Danvers, MA, USA | #2978 |
| Cyclin B1 | | Rabbit | GeneTex | Irvine, CA, USA | GTX100911 |
| P21 | | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-10129R-TR |
| Matrix metalloproteinase-2 (MMP-2) | | Rabbit | BIOSS antibodies | Wobum, MA, USA | bs-4605R-TR |
| α -Smooth muscle actin (α SMA) | | Rabbit | Cell Signaling technology | Danvers, MA, USA | #34105 |
| E-Cadherin | | Rabbit | GeneTex | Irvine, CA, USA | GTX100443 |
| N-Cadherin | | Rabbit | GeneTex | Irvine, CA, USA | GTX127345 |
| Vimentin | | Rabbit | GeneTex | Irvine, CA, USA | GTX132610 |
| TP53 | | Mouse | Thermo Fisher Scientific | Carlsbad, CA, USA | #MS-105-P0 |
| Caspase-3 | | Rabbit | GeneTex | Irvine, CA, USA | GTX110543 |
| β -Actin | | Rabbit | GeneTex | Irvine, CA, USA | GTX109639 |

Supplementary Table S2. Profile of four amino acid substitution polymorphisms in a pancreatic adenocarcinoma of a patient.¹

| Gene symbol | Locus ² | Variant class | Gene Class | Type | Nucleotide Change | Allele frequency (%) | Amino acid Change |
|-----------------|--------------------|---------------|------------------|------|-------------------|----------------------|---------------------|
| <i>TP53</i> | 17: 7577568 | Hotspot | Loss of function | Sn | c.713G>A | 99.5 | p.Cys238Tyr |
| <i>KRAS</i> | 12: 25398284 | Hotspot | Gain of function | Sn | c.35G>A | 49.1 | p.Gly12Asp |
| <i>ARID1A</i> | 1: 27105833 | Truncating | Loss of function | Del | c.5445delG | 17.0 | p.Ile1816SerfsTer67 |
| <i>NOTCH2NL</i> | 1: 120612002 | Truncating | Loss of function | Del | c.-39436CCG>G | 50.2 | p. ³ |

¹ Among all 161 most relevant cancer genes, 2 single nucleotide polymorphisms (Sn) and 2 deletions (Del) were found by using OncoPrint Comprehensive Assay v3 with workflows on Ion Chef System plus Ion Torrent Genexus system. ² Chromosome: its position. ³Not identified.

Supplementary Table S3. Incidence (%) of different differentiated adenocarcinoma (ADC) in patient-derived pancreatic cancer tissue-transplanted xenograft (PC-PDX) mice administered fucoxanthin (Fx).

| Group no. | Treatment (No. of mice) | Well-moderately differentiated ADC ^a | Moderately differentiated ADC ^b | Moderately-poorly differentiated ADC ^c | Total ADC |
|-----------|-------------------------|---|--|---|-----------|
| 1 | Fx (9) | 55.6%* | 44.4% | 0%** | 100% |
| 3 | Control (9) | 0% | 33.3% | 66.7% | 100% |

^a It is comprised of well > moderately (4 mice) and well < moderately (1 mouse) differentiated ADCs. These lesions were only detected in group 1 ^b It is moderately differentiated ADC alone. ^c It is comprised of poorly (2 mice) and poorly > moderately (4 mice) differentiated ADCs. These lesions were only detected in group 3. Significant difference for Fisher's exact probability test: * $P < 0.05$ and ** $P < 0.01$ from group 3. Group 1, fucoxanthin-high diet administered mice; group 3, control diet administered mice.

Supplementary Table S4. Profile of upregulated proteins identified by LC-MS/MS in whole tumor tissue of patient-derived pancreatic cancer tissue-transplanted xenograft (PC-PDX) mice administered fucoxanthin (Fx).¹

| Gene symbol | Description | Fold change ² |
|-------------|---|--------------------------|
| HSPA1L | Heat shock 70 kDa protein 1-like | 76.6 |
| PRMT5 | Protein arginine N-methyltransferase 5 | 24.6 |
| TBC1D2B | TBC1 domain family member 2B | 15.5 |
| TNXB | Tenascin-X | 15.5 |
| NEK9 | Serine/threonine-protein kinase Nek9 | 14.9 |
| NAAA | N-acyl ethanolamine-hydrolyzing acid amidase | 14.8 |
| TGFBR2 | TGF-beta receptor type-2 | 11.7 |
| MTOR | Serine/threonine-protein kinase mTOR | 9.5 |
| HSBP1 | Heat shock factor-binding protein 1 | 7.7 |
| ILVBL | 2-hydroxyacyl-CoA lyase 2 | 7.5 |
| F13A1 | Coagulation factor XIII A chain | 7.1 |
| APBB1IP | Amyloid beta A4 precursor protein-binding family B member 1-interacting protein | 7.0 |
| UNC119B | Protein unc-119 homolog B | 6.7 |
| PEX1 | Peroxisome biogenesis factor 1 | 6.7 |
| GFPT2 | Glutamine--fructose-6-phosphate aminotransferase [isomerizing] 2 | 5.8 |
| KRI1 | Protein KRI1 homolog | 5.7 |
| PCOLCE | Procollagen C-endopeptidase enhancer 1 | 5.5 |
| CCDC90B | Coiled-coil domain-containing protein 90B, mitochondrial | 5.5 |
| ISG20 | Interferon-stimulated gene 20 kDa protein | 5.5 |
| YKT6 | Synaptobrevin homolog YKT6 | 5.4 |
| DOCK2 | Dedicator of cytokinesis protein 2 | 5.1 |
| COL6A6 | Collagen alpha-6(VI) chain | 5.1 |
| TACO1 | Translational activator of cytochrome c oxidase 1 | 4.9 |
| FUT8 | Alpha-(1,6)-fucosyltransferase | 4.8 |
| OSBPL9 | Oxysterol-binding protein-related protein 9 | 4.8 |

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|---------|--|-----|
| PRORS1P | Putative prolyl-tRNA synthetase associated domain-containing protein 1 | 4.8 |
| CMTR1 | Cap-specific mRNA (nucleoside-2'-O-)-methyltransferase 1 | 4.7 |
| NHLRC2 | NHL repeat-containing protein 2 | 4.5 |
| AXL | Tyrosine-protein kinase receptor UFO | 4.3 |
| HTRA2 | Serine protease HTRA2, mitochondrial | 4.2 |
| VAV2 | Guanine nucleotide exchange factor VAV2 | 3.9 |
| DCUN1D5 | DCN1-like protein 5 | 3.9 |
| HAL | Histidine ammonia-lyase | 3.9 |
| TNS1 | Tensin-1 | 3.8 |
| MINDY3 | Ubiquitin carboxyl-terminal hydrolase MINDY-3 | 3.8 |
| DDC | Aromatic-L-amino-acid decarboxylase | 3.7 |
| MAP2K3 | Dual specificity mitogen-activated protein kinase kinase 3 | 3.7 |
| DPT | Dermatopontin | 3.6 |
| SEC24D | Protein transport protein Sec24D | 3.5 |
| KDM1A | Lysine-specific histone demethylase 1A | 3.5 |
| AFAP1 | Actin filament-associated protein 1 | 3.4 |
| CPSF1 | Cleavage and polyadenylation specificity factor subunit 1 | 3.4 |
| ZFP36L2 | mRNA decay activator protein ZFP36L2 | 3.3 |
| ACSM3 | Acyl-coenzyme A synthetase ACSM3, mitochondrial | 3.1 |
| HDAC6 | Histone deacetylase 6 | 3.1 |
| AGPAT1 | 1-acyl-sn-glycerol-3-phosphate acyltransferase alpha | 3.1 |
| VTI1A | Vesicle transport through interaction with t-SNAREs homolog 1A | 3.0 |
| AP1S1 | AP-1 complex subunit sigma-1A | 2.9 |
| FILIP1L | Filamin A-interacting protein 1-like | 2.9 |
| SNTB2 | Beta-2-syntrophin | 2.8 |
| DCN | Decorin | 2.6 |
| HO1 | Heme oxygenase 1 | 2.5 |
| FAF1 | FAS-associated factor 1 | 1.8 |

¹ Proteins passed both peptide false discovery rate (FDR, cutoff < 1%) and protein FDR (cutoff < 1%) were detected. Among all 318 upregulated proteins (≥ 1.5 -fold change), top 50 upregulated proteins, and three proteins, DCN (2.6-fold), HO1 (2.5-fold) and FAF1 (1.8-fold) were showed. ² Fold change in human protein expressions in whole tumor tissue of PC-PDX mice with Fx-high diet administration (group 1) compared to that of control mice (group 3). Proteins colored gray were the proteins that were applied to western blot analysis as noteworthy cancer-related molecules (Figure 4).

Supplementary Table S5. Profile of downregulated proteins identified by LC-MS/MS in whole tumor tissue of patient-derived pancreatic cancer tissue-transplanted xenograft (PC-PDX) mice administered fucoxanthin (Fx).¹

| Gene symbol | Description | Fold change ² |
|-------------|--|--------------------------|
| INSR | Insulin receptor | N.D. ³ |
| BAG1 | BAG family molecular chaperone regulator 1 | N.D. |
| NTS | Neurotensin/neuromedin N | N.D. |
| MT2A | Metallothionein-2 | N.D. |
| ITGB3 | Integrin beta-3 | N.D. |

| | | |
|---------|---|-------|
| TNIP1 | TNFAIP3-interacting protein 1 | N.D. |
| CCDC12 | Coiled-coil domain-containing protein 12 | N.D. |
| SIPA1L3 | Signal-induced proliferation-associated 1-like protein 3 | N.D. |
| RTN2 | Reticulon-2 | N.D. |
| MAP3K7 | Mitogen-activated protein kinase kinase kinase 7 | N.D. |
| IL1R2 | Interleukin-1 receptor type 2 | N.D. |
| CD47 | Leukocyte surface antigen CD47 | N.D. |
| VEZT | Vezatin | N.D. |
| TUFT1 | Tuftelin | N.D. |
| WDR49 | WD repeat-containing protein 49 | N.D. |
| CEMIP2 | Cell surface hyaluronidase | N.D. |
| HRNR | Hornerin | N.D. |
| IFIT5 | Interferon-induced protein with tetratricopeptide repeats 5 | N.D. |
| TTK | Dual specificity protein kinase TTK | −10.2 |
| CTDSPL2 | CTD small phosphatase-like protein 2 | −7.6 |
| TGFB1 | Transforming growth factor beta-1 proprotein | −6.0 |
| SCFD2 | Sec1 family domain-containing protein 2 | −5.5 |
| LPXN | Leupaxin | −4.7 |
| LAMTOR2 | Ragulator complex protein LAMTOR2 | −4.4 |
| IGFBP3 | Insulin-like growth factor-binding protein 3 | −4.0 |
| MIF | Macrophage migration inhibitory factor | −3.8 |
| TFF3 | Trefoil factor 3 | −3.8 |
| TFCP2L1 | Transcription factor CP2-like protein 1 | −3.7 |
| ITGA1 | Integrin alpha-1 | −3.6 |
| TERF2IP | Telomeric repeat-binding factor 2-interacting protein 1 | −3.6 |
| LAMA5 | Laminin subunit alpha-5 | −3.2 |
| REG4 | Regenerating islet-derived protein 4 | −3.2 |
| SP3 | Transcription factor Sp3 | −3.1 |
| NECTIN2 | Nectin-2 | −3.1 |
| ECM1 | Extracellular matrix protein 1 | −3.0 |
| MUC5B | Mucin-5B | −2.8 |
| HNF4A | Hepatocyte nuclear factor 4-alpha | −2.7 |
| PCID2 | PCI domain-containing protein 2 | −2.5 |
| GPX2 | Glutathione peroxidase 2 | −2.5 |
| NFKB1 | Nuclear factor NF-kappa-B p105 subunit | −2.4 |
| NFKB2 | Nuclear factor NF-kappa-B p100 subunit | −2.3 |
| CLU | Clusterin | −2.3 |
| IGFBP2 | Insulin-like growth factor-binding protein 2 | −2.3 |
| ABRACL | Costars family protein ABRACL | −2.3 |
| AAGAB | Alpha- and gamma-adaptin-binding protein p34 | −2.2 |
| CNOT2 | CCR4-NOT transcription complex subunit 2 | −2.2 |
| SEC62 | Translocation protein SEC62 | −2.1 |

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| ZMYND8 | Protein kinase C-binding protein 1 | −2.1 |
| SYNE2 | Nesprin-2 | −2.1 |
| CMC1 | COX assembly mitochondrial protein homolog | −2.1 |
| CFL2 | Cofilin-2 | −2.1 |
| FKBP5 | Peptidyl-prolyl cis-trans isomerase FKBP5 | −2.1 |
| PROM1 | Prominin-1 | −2.0 |
| PIEZO1 | Piezo-type mechanosensitive ion channel component 1 | −2.0 |
| VSNL1 | Visinin-like protein 1 | −2.0 |
| SCIN | Adseverin | −2.0 |
| OCLN | Occludin | −1.9 |
| UXT | Protein UXT | −1.9 |
| GATA6 | Transcription factor GATA-6 | −1.9 |
| ITGA3 | Integrin alpha-3 | −1.9 |
| COL17A1 | Collagen alpha-1(XVII) chain | −1.9 |
| CST3 | Cystatin-C | −1.9 |
| PKP2 | Plakophilin-2 | −1.9 |
| CD44 | CD44 antigen | −1.9 |
| XRCC4 | DNA repair protein XRCC4 | −1.9 |
| FXSD3 | FXSD domain-containing ion transport regulator 3 | −1.9 |
| LAMTOR5 | Ragulator complex protein LAMTOR5 | −1.9 |
| CD55 | Complement decay-accelerating factor | −1.9 |
| NCAPH | Condensin complex subunit 2 | −1.9 |
| CDC42EP5 | Cdc42 effector protein 5 | −1.8 |
| AGRN | Agrin | −1.8 |
| TIMP1 | Metalloproteinase inhibitor 1 | −1.8 |
| LCN2 | Neutrophil gelatinase-associated lipocalin | −1.8 |
| PPP1R1B | Protein phosphatase 1 regulatory subunit 1B | −1.7 |
| QSOX1 | Sulphydryl oxidase 1 | −1.7 |
| ADAM17 | Disintegrin and metalloproteinase domain-containing protein 17 | −1.7 |
| RASAL1 | RasGAP-activating-like protein 1 | −1.7 |
| NFATC2IP | NFATC2-interacting protein | −1.7 |
| FAM83B | Protein FAM83B | −1.7 |
| HNF1B | Hepatocyte nuclear factor 1-beta | −1.7 |
| MDK | Midkine | −1.7 |
| DKK1 | Dickkopf-related protein 1 | −1.7 |
| MAPK13 | Mitogen-activated protein kinase 13 | −1.7 |
| FHL2 | Four and a half LIM domains protein 2 | −1.7 |
| PTGES2 | Prostaglandin E synthase 2 | −1.7 |
| EPCAM | Epithelial cell adhesion molecule | −1.7 |
| GRN | Progranulin | −1.7 |
| RHOC | Rho-related GTP-binding protein RhoC | −1.7 |
| MMP9 | Matrix metalloproteinase-9 | −1.7 |

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|---------|---|------|
| CD99 | CD99 antigen | -1.7 |
| DAG1 | Dystroglycan 1 | -1.7 |
| PTP4A1 | Protein tyrosine phosphatase type IVA 1 | -1.7 |
| ANKRD22 | Ankyrin repeat domain-containing protein 22 | -1.7 |
| NUCKS1 | Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1 | -1.6 |
| MUC5AC | Mucin-5AC | -1.6 |
| OXR1 | Oxidation resistance protein 1 | -1.6 |
| RPA3 | Replication protein A 14 kDa subunit | -1.6 |
| STUB1 | E3 ubiquitin-protein ligase CHIP | -1.6 |
| SUMO3 | Small ubiquitin-related modifier 3 | -1.6 |
| TGFB1I1 | Transforming growth factor beta-1-induced transcript 1 protein | -1.6 |
| MSLN | Mesothelin | -1.6 |
| LTBR | Tumor necrosis factor receptor superfamily member 3 | -1.6 |
| HAT1 | Histone acetyltransferase type B catalytic subunit | -1.6 |
| CDK9 | Cyclin-dependent kinase 9 | -1.6 |
| GAB1 | GRB2-associated-binding protein 1 | -1.6 |
| COL15A1 | Collagen alpha-1(XV) chain | -1.6 |
| F11R | Junctional adhesion molecule A | -1.5 |
| CDH3 | Cadherin-3 | -1.5 |
| CAT | Catalase | -1.5 |

¹ Proteins passed both peptide false discovery rate (FDR, cutoff < 1%) and protein FDR (cutoff < 1%) were detected. Among all 888 downregulated proteins (≤ -1.5 -fold change), 109 downregulated involving in proteins growth, inflammation, and cancer development, were showed. ² Fold change in human protein expressions in whole tumor tissue of PC-PDX mice with Fx-high diet administration (group 1) compared to that of control mice (group 3). ³ N.D., Proteins were not detected in group 1 and detected in group 3. Proteins colored gray were the proteins that were applied to western blot analysis as noteworthy cancer-related molecules (Figure 4).