### Table S1. Function of 20 candidate genes.

<table>
<thead>
<tr>
<th>Gene Symbol</th>
<th>Gene Function</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALOX5AP</td>
<td>required for leukotriene synthesis with 5-lipoxygenase catalyzing the last step of the mitochondrial fatty acid</td>
<td>RefSeq, Feb 2011</td>
</tr>
<tr>
<td>ACAA2</td>
<td>beta-oxidation spiral, providing a possible linkage between fatty acid metabolism and apoptosis of cells</td>
<td>RefSeq, Jul 2008; PMID: 18371312</td>
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<tr>
<td>PYGL</td>
<td>alpha-1,4-glucosidic bonds to release glucose-1-phosphate from liver glycogen stores</td>
<td>RefSeq, Feb 2011</td>
</tr>
<tr>
<td>OAS1</td>
<td>synthesizing 2',5'-oligoadenylates (2-5As), associated with Lipopolysaccharide-induced cell death</td>
<td>RefSeq, Feb 2016; PMID: 26516113; RefSeq, Jul 2008; PMID: 29974846; PMID: 29148015; PMID: 27323852; PMID: 26942567; PMID: 28412735</td>
</tr>
<tr>
<td>NNMT</td>
<td>responsible for N-methylation, associated with pancreatic cancer, bladder cancer, ovarian cancer, colorectal cancer, clear cell Renal cell carcinoma</td>
<td></td>
</tr>
<tr>
<td>FAH</td>
<td>the last enzyme in the tyrosine catabolism pathway</td>
<td>RefSeq, Jul 2008</td>
</tr>
<tr>
<td>EXTL3</td>
<td>a glycosyltransferase, catalyzing the transfer of N-acetylglucosamine to glycosaminoglycan chains,</td>
<td>RefSeq, Nov 2012; PMID: 28132690</td>
</tr>
</tbody>
</table>
associated with neurological abnormality

beta-1,3-galactosyltransferase, with diverse enzymatic functions, a potential therapy target gene to suppress metastasis in non-small cell lung cancer

UPP1 uridine phosphorylase, functioning in the degradation and salvage of pyrimidine ribonucleosides, may be an independent prognostic marker in breast carcinoma

catalyzing the two-electron reduction of quinone substrates, associated with neurodegenerative diseases and several cancers

MAN1B1 functioning in N-glycan biosynthesis, associated with poor prognosis and modulating proliferation and apoptosis in bladder cancer

CNGA3 required for normal vision and olfactory signal transduction

PIGB located in the endoplasmic reticulum and involved in GPI-anchor biosynthesis

catalyzing molecules containing terminal N-acetyl hexosamines, associated with prostate cancer

HEXA hexosamines, associated with prostate cancer

catalyzing molecules containing terminal N-acetyl hexosamines, associated with prostate cancer

CYB561 a senescence-associated gene in normal human oral keratinocytes, associated with the adrenergic pathway
ACADS catalyzing the initial step of the mitochondrial fatty acid beta-oxidation pathway

functioning in regulating the transport of cholesterol,  

NPC2 *associated with Niemann-Pick disease, type C2 and frontal lobe atrophy*  

*associated with adrenocortical carcinoma tumorigenesis*  

SLC12A7 and gynecological cancers  

involved in the degradation of long branched fatty acids  

ACOX2 and bile acid intermediates in peroxisomes, a potential novel therapeutic biomarker in ER+ breast tumors  

B4GALT7 beta-1,4-galactosyltransferase, associated with the progeroid form of Ehlers-Danlos syndrome

The gene functions marked in bold in the table show the possibility that the gene is associated with glioma.