Supplementary Material

SM1. Log-Rang Test for all the proteins studied.

Protein marker	Chi-Square Statistic	Degrees of Freedom	P value
Ferroptosis markers			
TFRC	29.4	2	4e-07
ACSL-4	17.9	2	1e-04
ALOX-5	17.6	2	2e-04
GPX4	25.5	2	3e-06
Chronobiological markers			
Bmal 1	32.8	2	8e-08
CLOCK	41.3	2	1e-09
PER1	34.2	2	4e-08
PER2	28.5	2	6e-07
Antiaging markers			
KLOTHO	26.8	2	1e-06

SM2. List of adjusted p values associated to Spearman coefficients from heatmap pairwise matrix.

$`TFRC-ACSL-4` [1] 2.088403e-06	$`ACSL-4-GPX4` [1] 2.24736e-05	$`ALOX-5-PER1` [1] 1.059745e-05	$`Bmal 1-PER1` [1] 1.496232e-07
$`TFRC-ALOX-5` [1] 8.715189e-07	$`ACSL-4-Bmal 1` [1] 7.89156e-07	$`ALOX-5-PER2` [1] 0.0001228917	$`Bmal 1-PER2` [1] 4.487139e-07
$`TFRC-GPX4` [1] 2.922983e-08	$`ACSL-4-CLOCK` [1] 1.776848e-06	$`ALOX-5-KLOTHO` [1] 9.621907e-05	$`Bmal 1-KLOTHO` [1] 1.473666e-06
$`TFRC-Bmal 1` [1] 2.486562e-10	$`ACSL-4-PER1` [1] 4.789733e-06	$`GPX4-Bmal 1` [1] 3.679174e-07	$`CLOCK-PER1` [1] 1.755143e-08
$`TFRC-CLOCK` [1] 1.675504e-11	$`ACSL-4-PER2` [1] 0.0006714387	$`GPX4-CLOCK` [1] 5.372383e-06	$`CLOCK-PER2` [1] 2.698841e-07
$`TFRC-PER1` [1] 1.68284e-08	$`ACSL-4-KLOTHO` [1] 0.0004326312	$`GPX4-PER1` [1] 1.031502e-10	$`CLOCK-KLOTHO` [1] 1.664274e-05
$`TFRC-PER2` [1] 5.800521e-08	$`ALOX-5-GPX4` [1] 0.002685902	$`GPX4-PER2` [1] 1.763828e-09	$`PER1-PER2` [1] 9.703349e-13
$`TFRC-KLOTHO` [1] 1.74642e-08	$`ALOX-5-Bmal 1` [1] 0.002665569	$`GPX4-KLOTHO` [1] 0.0001177592	$`PER1-KLOTHO` [1] 7.001588e-07
$`ACSL-4-ALOX-5` [1] 0.0295919	$`ALOX-5-CLOCK` [1] 5.715695e-05	$`Bmal 1-CLOCK` [1] 2.141798e-11	$`PER2-KLOTHO` [1] 0.0001795237

SM3. Fisher's Exact Test.

	Fisher's Exact Test (p-value)								
Predictive Variable	TFRC	AC SL-4	AL OX-5	GP X4	B mal 1	CL OCK	PE R1	PE R2	KLO THO
Sex	1	0.5191	1	0.8851	1	0.1711	1	1	0.7074
Smoking Habit	0.8775	0.8449	0.5653	0.624	0.4223	0.1067	1	0.5658	0.4806
Drinking Habit	1	1	0.8469	0.8651	0.3479	0.4006	0.8087	0.7974	0.3106
Obesity	0.2061	0.5049	0.05488	0.2427	0.2866	0.35	0.2085	0.3695	0.1463
Type 2 Diabetes + Obesity (Diabesity)	0.8665	0.82	0.8665	0.4708	0.6351	0.5789	0.3551	0.08312	0.3251
Chronic Pathologies	0.02044 *	0.02064 *	0.06636	0.02695 *	0.04172 *	0.02246 *	0.05652	0.02567 *	0.0476 *
Prior Malignances	1	0.6015	0.8469	0.3655	0.4468	0.4006	0.4006	0.4006	0.5954
Sex * Smoking	1	0.7964	0.8527	0.9337	0.919	0.2969	0.9618	0.7703	0.8989
Sex * Drinking	1	0.9199	0.9797	0.9874	0.7981	0.3553	0.9935	1	0.5802
Sex * Obesity	0.4212	0.3534	0.08873	0.3961	0.4402	0.1514	0.3948	0.5767	0.1555
Sex * Diabesity	0.8471	0.2563	0.9794	0.09727	0.8131	0.3713	0.3988	0.1459	0.7326
Sex * Chronic Pathologies	0.06418	0.02608 *	0.2301	0.08922	0.2192	0.009979 **	0.2759	0.2048	0.1401
Sex * Prior Malignancies	1	0.7374	0.9797	0.8876	0.7981	0.3553	0.9935	0.92	0.9106
Smoking * Drinking	1	0.7154	0.8265	0.5959	0.7832	0.4194	0.5755	0.7046	0.1461
Smoking * Obesity	0.3121	0.5832	0.05585	0.265	0.4182	0.1411	0.3866	0.335	0.09417

Smoking * Diabesity	0.4866	0.9143	0.427	0.2952	0.7059	0.1847	0.2471	0.09622	0.1591
Smoking * Chronic Pathologies	0.01789 *	0.04123 *	0.04135 *	0.0265 *	0.1365	0.003577 **	0.7221	0.03784 *	0.009584 **
Smoking * Prior Malignancies	0.9724	0.5519	0.843	0.7595	0.4489	0.1457	0.9671	0.4929	0.6508
Drinking * Obesity	0.4239	0.8918	0.08958	0.4176	0.2978	0.405	0.5103	0.6414	0.09118
Drinking * Diabesity	0.9493	0.9418	0.8224	0.3901	0.7941	0.5919	0.4252	0.2002	0.2441
Drinking * Chronic Pathologies	0.0593	0.08467	0.1207	0.09436	0.1287	0.04726 *	0.1773	0.1218	0.04471 *
Drinking * Prior Malignancies	0.7313	0.8819	0.5278	0.6105	0.6616	0.6533	0.9949	0.9459	0.6084
Obesity * Chronic Pathologies	0.07219	0.04771 *	0.02615 *	0.07667	0.1251	0.06897	0.0521	0.05848	0.04224 *
Obesity * Prior Malignancies	0.4239	0.5704	0.08958	0.2347	0.24	0.405	0.5103	0.3743	0.173
Diabesity * Chronic Pathologies	0.008848 **	0.07057	0.05503	0.01582 *	0.06554	0.08929	0.15	0.01783 *	0.00337 *
Diabesity * Prior Malignancies	0.8593	0.7958	0.5118	0.4524	0.4534	0.5597	0.6375	0.0593	0.2399
Chronic Pathologies * Prior	0.0593	0.03953 *	0.1207	0.05765	0.1037	0.04726 *	0.1773	0.07268	0.09615

Malignancies									

P value significance: *<0.05, **<0.01, ***<0.001.

SM4. Adjusted p values for Fisher´s Exact Test

	Adjusted p-values (FDR)								
Predictive Variable	TFRC	ACSL-4	ALOX-5	GPX4	Bmal 1	CLOCK	PER1	PER2	KLOTHO
Chronic Pathologies	0.04312*	0.04312 *	-	0.04312 *	0.04771 *	0.04312 *	-	0.04312 *	0.04771 *
Sex * Chronic Pathologies	-	0.04312 *	-	-	-	0.04312 *	-	-	-
Smoking * Chronic Pathologies	0.04312 *	0.04771 *	0.04771 *	0.04312 *	-	0.04312 *	-	0.04771 *	0.04312 *
Drinking * Chronic Pathologies	-	-	-	-	-	0.04771 *	-	-	-
Obesity * Chronic Pathologies	-	0.04771 *	0.04312 *	-	-	-	-	-	-
Diabesity * Chronic Pathologies	0.04312 *	-	-	0.04312 *	-	-	-	0.04312 *	-
Chronic Pathologies * Prior Malignancies	-	0.04312 *	-	-	-	0.04312 *	-	-	-

False Discovery Rate correction (FDR) of the method Benjamini-Hochberg: adjusted alpha (0.001***; 0.01**; 0.05*): **0.003***; 0.015**; 0.05***.

SM5. Kaplan Meier Survival according to the presence of a Chronic Pathology

