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In [1]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
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In [5]: methylome_childhood = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_methylome_childhood.csv')
methylome_pregnancy = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_methylome_pregnancy.csv')

MiRNA_childhood = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_miRNA_childhood.csv')
MiRNA_pregnancy = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_miRNA_pregnancy.csv')

Proteins_childhood = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_proteins_childhood.csv')
Proteins_pregnancy = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_proteins_pregnancy.csv')

Transcriptome_childhood = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_transcriptome_childhood.csv')
Transcriptome_pregnancy = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_transcriptome_pregnancy.csv')

Serum_childhood = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_serum_metabolites_childhood.csv')
Serum_pregnancy = pd.read_csv('C:/Users/vighn/OneDrive/Desktop/MS/PM-606 Project/OMICS DATA/clean_serum_metabolites_pregnancy.csv')
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In [8]: methylome_childhood.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	PVAL1	...	2_P.Value	2_adj.P.Val	3_Effect	3_SE	3_P.Value	3_adj.P.Val	4_Effect	4_SE	4_P.Value	4_adj.P.Val
0	1	cg10110857	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.007871	0.919889	NS	...	0.019979	0.953574	0.002812	0.003159	0.525871	0.993692	NaN	NaN	NaN	NaN
1	2	cg22481263	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.005008	0.896737	NS	...	0.061740	0.981157	0.000341	0.002610	0.926741	0.999001	NaN	NaN	NaN	NaN
2	3	cg15713103	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.004186	0.896737	NS	...	0.430823	0.994559	-0.010069	0.004946	0.197997	0.989840	NaN	NaN	NaN	NaN
3	4	cg13552506	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.004274	0.896737	NS	...	0.001436	0.873680	-0.004886	0.002730	0.040827	0.973694	NaN	NaN	NaN	NaN
4	5	cg03055733	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.000436	0.862041	NS	...	0.000945	0.873680	0.005774	0.003283	0.166375	0.988465	NaN	NaN	NaN	NaN

5 rows × 28 columns

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In [9]: methylome_pregnancy.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	PVAL1	...	2_P.Value	2_adj.P.Val	3_Effect	3_SE	3_P.Value	3_adj.P.Val	4_Effect	4_SE	4_P.Value	4_adj.P.Val
0	1	cg22798412	Alcohol intake	Prenatal Alcohol	Lifestyle	0.005988	0.001817	0.001212	0.993005	NS	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	2	cg15994839	Alcohol intake	Prenatal Alcohol	Lifestyle	0.006625	0.001440	0.006237	0.993005	NS	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	3	cg17612270	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.006597	0.002040	0.007647	0.993005	NS	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	4	cg19910128	Alcohol intake	Prenatal Alcohol	Lifestyle	0.004275	0.001599	0.001770	0.993005	NS	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	5	cg08937102	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.002811	0.003606	0.008665	0.993005	NS	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

5 rows × 29 columns

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In [10]: MiRNA_childhood.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	PVAL1	...	4_SE	4_P.Value	4_adj.P.Val	MirbaseAccessionNo	Gene_Symbol	Chromosome	Agilent	StartMirbase	StopMirbase	StrandMirbase	CallRate
0	1	hsa-miR-144-5p	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.007050	0.687081	NS	...	NaN	NaN	NaN	MIMAT0004600	MIR144		chr17	27188601	27188622	-	98.156277
1	2	hsa-miR-3150b-5p	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.008019	0.687081	NS	...	NaN	NaN	NaN	MIMAT0019226	MIR3150B		NaN	96085189	96085210	-	2.282704
2	3	hsa-miR-3196	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.003737	0.687081	NS	...	NaN	NaN	NaN	MIMAT0015080	MIR3196		NaN	61870140	61870157	+	93.942054
3	4	hsa-miR-4299	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.005385	0.687081	NS	...	NaN	NaN	NaN	MIMAT0016851	MIR4299		NaN	11678208	11678225	-	99.648815
4	5	hsa-miR-4470	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.006251	0.687081	NS	...	NaN	NaN	NaN	MIMAT0018997	MIR4470		NaN	62627391	62627411	+	10.096576

5 rows × 31 columns

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In [11]: MiRNA_pregnancy.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	PVAL1	...	4_SE	4_P.Value	4_adj.P.Val	MirbaseAccessionNo	Gene_Symbol	Chromosome	Agilent	StartMirbase	StopMirbase	StrandMirbase	CallRate
0	45	hsa-miR-1227-3p	Alcohol intake	Prenatal Alcohol	Lifestyle	0.007001	0.028257	0.008646	0.742931	NS	...	NaN	NaN	NaN	MIMAT0005580	MIR1227		chr19	2234061	2234080	-	15.627744
1	95	hsa-miR-1288-3p	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.012007	0.002923	0.002321	0.566477	NS	...	NaN	NaN	NaN	MIMAT0005942	MIR1288		chr17	16185372	16185392	+	0.877963
2	109	hsa-miR-1305	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.014462	0.003017	0.008018	0.742931	NS	...	NaN	NaN	NaN	MIMAT0005893	MIR1305		NaN	183090496	183090517	+	14.223003
3	180	hsa-miR-191-5p	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.022064	0.003603	0.003262	0.566477	NS	...	NaN	NaN	NaN	MIMAT0000440	MIR191		chr3	49058105	49058127	-	87.445127
4	203	hsa-miR-198	Alcohol intake	Prenatal Alcohol	Lifestyle	0.009177	0.028948	0.007768	0.742931	NS	...	NaN	NaN	NaN	MIMAT0000228	MIR198		NaN	120114550	120114571	-	12.291484

5 rows × 31 columns

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In [13]: Proteins_childhood.head()
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	index	PVAL3	P.Value	3_Effect	3_P.Value	2_Effect	2_P.Value	2_adj.P.Val	2_SE	3_adj.P.Val	...	4_adj.P.Val	PVAL1	PVAL2	Group	Exposure	Subgroup	Gene_Symbol	UniProtKB	Omics_marker	adj.P.Val
0	1.0	NS	0.275536	0.070047	0.192179	0.027598	0.621788	1.00000	0.070354	1.0	...	0.0	NS	NS	Social and economic capital	Family affluence score	Economic capital	ADIPOQ	Q15848	Adiponectin	1.00000
1	2.0	NS	0.348349	-0.231453	0.184685	-0.257803	0.156193	1.00000	0.063229	1.0	...	0.0	NS	NS	Social and economic capital	Family affluence score	Economic capital	CRP	P02741	CRP	1.00000
2	3.0	NS	0.591045	0.047539	0.330126	0.049540	0.330028	1.00000	0.034131	1.0	...	0.0	NS	NS	Social and economic capital	Family affluence score	Economic capital	APOA1	P02647	APO.A1	1.00000
3	4.0	NS	0.046477	-0.047579	0.215837	-0.090984	0.023220	0.42796	0.181690	1.0	...	0.0	NS	NS	Social and economic capital	Family affluence score	Economic capital	APOB	P04114	APO.B	0.85659
4	5.0	NS	0.589830	0.063821	0.323035	0.042285	0.529673	1.00000	0.106504	1.0	...	0.0	NS	NS	Social and economic capital	Family affluence score	Economic capital	APOE	P02649	APO.E	1.00000

5 rows × 25 columns

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In [14]: Proteins_pregnancy.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	UniProtKB	...	2_P.Value	2_adj.P.Val	3_Effect	3_SE	3_P.Value	3_adj.P.Val	4_Effect	4_SE	4_P.Value	4_adj.P.Val
0	1.0	Adiponectin	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.033850	0.029874	0.351647	1.000000	Q15848	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.0	CRP	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.237426	0.117831	0.044138	0.813493	P02741	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.0	APO.A1	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.012904	0.045696	0.695943	1.000000	P02647	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.0	APO.B	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.013832	0.103116	0.595531	1.000000	P04114	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	5.0	APO.E	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.000572	0.053709	0.989544	1.000000	P02649	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5 rows × 25 columns

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In [15]: Transcriptome_childhood.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	seqname	...	2_P.Value	2_adj.P.Val	3_Effect	3_SE	3_P.Value	3_adj.P.Val	4_Effect	4_SE	4_P.Value	4_adj.P.Val
0	1	TC01000134.hg.1	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.003450	0.965777	chr1	...	0.249706	0.997280	-0.028603	0.008860	0.005175	0.999956	NaN	NaN	NaN	NaN
1	2	TC01000188.hg.1	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.007225	0.981460	chr1	...	0.001725	0.965561	-0.020522	0.011927	0.015319	0.999956	NaN	NaN	NaN	NaN
2	3	TC01000224.hg.1	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.005717	0.966779	chr1	...	0.008405	0.990085	-0.023768	0.014384	0.296854	0.999956	NaN	NaN	NaN	NaN
3	4	TC01000281.hg.1	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.003383	0.965777	chr1	...	0.977366	0.999832	0.063520	0.061264	0.048910	0.999956	NaN	NaN	NaN	NaN
4	5	TC01000285.hg.1	Family affluence score	Economic capital	Social and economic capital	NaN	NaN	0.008898	0.981460	chr1	...	0.297535	0.997280	-0.007220	0.011895	0.385842	0.999956	NaN	NaN	NaN	NaN

5 rows × 31 columns

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In [16]: Transcriptome_pregnancy.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	SE	P.Value	adj.P.Val	seqname	...	2_P.Value	2_adj.P.Val	3_Effect	3_SE	3_P.Value	3_adj.P.Val	4_Effect	4_SE	4_P.Value	4_adj.P.Val
0	1	TC01000004.hg.1	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.049242	0.008737	0.006121	0.999771	chr1	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	2	TC01000223.hg.1	Alcohol intake	Prenatal Alcohol	Lifestyle	0.038621	0.020030	0.003521	0.999771	chr1	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	3	TC01000332.hg.1	Alcohol intake	Prenatal Alcohol	Lifestyle	0.012127	0.013203	0.003742	0.999771	chr1	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	4	TC01000358.hg.1	Alcohol intake	Prenatal Alcohol	Lifestyle	-0.022976	0.006380	0.006984	0.999771	chr1	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	5	TC01000498.hg.1	Alcohol intake	Prenatal Alcohol	Lifestyle	0.031343	0.005153	0.009761	0.999771	chr1	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

5 rows × 31 columns

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In [17]: Serum_childhood.head()
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	index	Omics_marker	Exposure	Subgroup	Group	Effect	P.Value	adj.P.Val	PVAL1	PVAL2	PVAL3	2_Effect	2_P.Value	2_adj.P.Val	3_Effect	3_P.Value	3_adj.P.Val	4_Effect	4_P.Value	4_adj.P.Val
0	1.0	Ac-Orn	Family affluence score	Economic capital	Social and economic capital	0.0	0.688492	1.0	NS	NS	NS	0.070664	0.508410	1.0	0.088279	0.388800	1.0	0.0	0.0	0.0
1	2.0	ADMA	Family affluence score	Economic capital	Social and economic capital	0.0	0.691653	1.0	NS	NS	NS	-0.014773	0.419311	1.0	-0.008429	0.630704	1.0	0.0	0.0	0.0
2	3.0	Ala	Family affluence score	Economic capital	Social and economic capital	0.0	0.831052	1.0	NS	NS	NS	-0.006274	0.827174	1.0	-0.014077	0.609331	1.0	0.0	0.0	0.0
3	4.0	alpha-AAA	Family affluence score	Economic capital	Social and economic capital	0.0	0.834847	1.0	NS	NS	NS	0.024506	0.715382	1.0	0.000844	0.989546	1.0	0.0	0.0	0.0
4	5.0	Arg	Family affluence score	Economic capital	Social and economic capital	0.0	0.559488	1.0	NS	NS	NS	-0.027925	0.281809	1.0	-0.020871	0.401343	1.0	0.0	0.0	0.0

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In [18]: Serum_pregnancy.head()
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	index	Omics_marker	Exposure	Period	Subgroup	Group	Effect	P.Value	adj.P.Val	PVAL1	...	PVAL3	2_Effect	2_P.Value	2_adj.P.Val	3_Effect	3_P.Value	3_adj.P.Val	4_Effect	4_P.Value	4_adj.P.Val
0	1.0	Ac-Orn	Alcohol intake	Pregnancy	Prenatal Alcohol	Lifestyle	-0.011709	0.864243	1.0	NS	...	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.0	ADMA	Alcohol intake	Pregnancy	Prenatal Alcohol	Lifestyle	0.016257	0.165332	1.0	NS	...	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.0	Ala	Alcohol intake	Pregnancy	Prenatal Alcohol	Lifestyle	0.007314	0.691234	1.0	NS	...	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4.0	alpha-AAA	Alcohol intake	Pregnancy	Prenatal Alcohol	Lifestyle	0.014091	0.743528	1.0	NS	...	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	5.0	Arg	Alcohol intake	Pregnancy	Prenatal Alcohol	Lifestyle	0.036531	0.027879	1.0	NS	...	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

5 rows × 21 columns