

Supplemental Material

Metabolomic alteration in the plasma of wild rodents environmentally exposed to lead: a preliminary study

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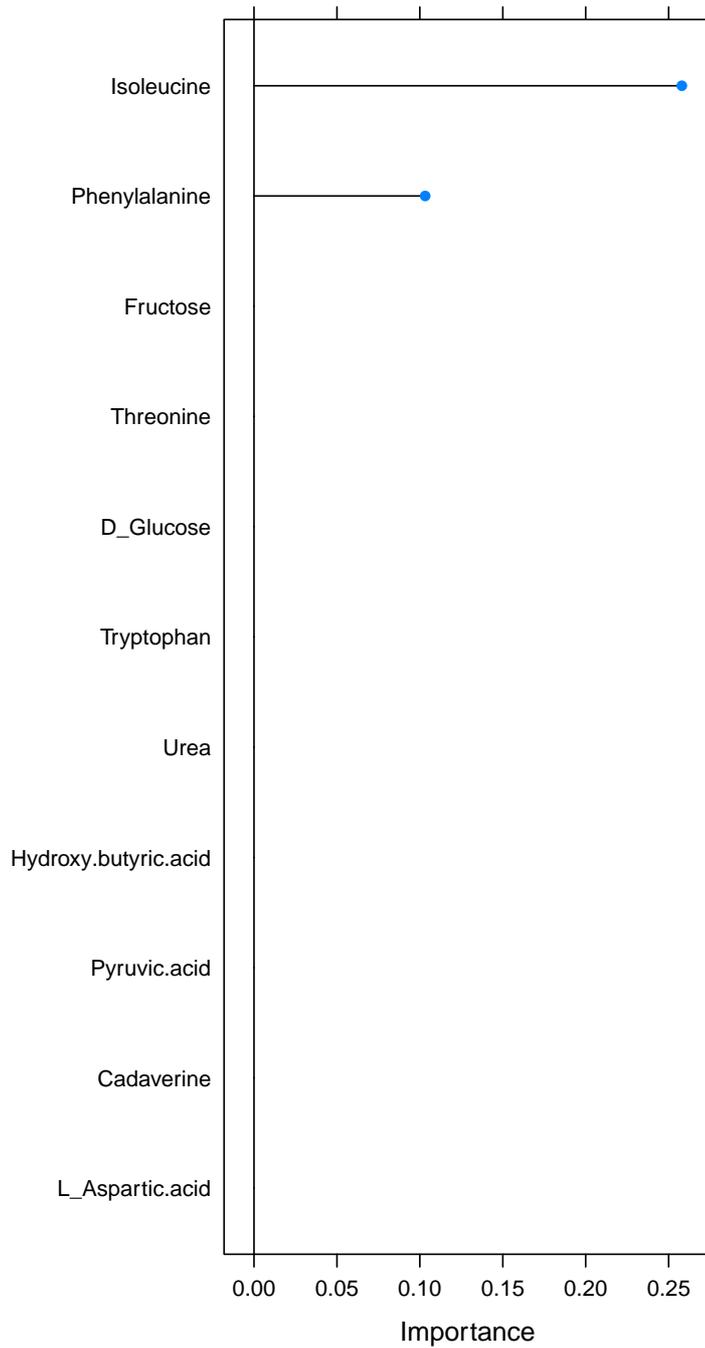
Supplementary Figure S1. Map of Kabwe town showing a mine dump site and two sampling sites, including Mutwe Wansofu and Kang'omba (modified from Google Earth).

Supplementary Figure S2. Importance of the selected variables in the lasso logistic model.

Supplementary Table S1. Outcomes of enrichment analysis of altered metabolic pathways identified as potential biomarkers in the lasso logistic regression model and random forest model.



Supplementary Figure S1. Map of Kabwe town showing a mine dump site and two sampling sites, including Mutwe Wansofu and Kang'omba (modified from Google Earth).



Supplementary Figure S2. Importance of the selected variables in the lasso logistic model.

Abbreviations: lasso, least absolute shrinkage and selection operator

Supplementary Table S1. Outcomes of enrichment analysis of altered metabolic pathways identified as potential biomarkers in the lasso logistic regression model and random forest model.

For lasso logistic regression model							
ID Annotation	Annotation	Category	Database	p-value	FDR correction	Submitted IDs	Matching IDs
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.0043	0.0658	ChEBI:17295 ChEBI:18050	ECMDB00159 ECMDB00641
SMP00019	Transcription/Translation	SMPDB Pathway	HMDB	0.0097	0.0876	ChEBI:17295 ChEBI:18050	HMDB00159 HMDB00641
COMPLETE-ARO-PWY-1	superpathway of phenylalanine, tyrosine, and tryptophan biosynthesis	Pathways	BioCyc	0.0033	0.1289	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-6318	phenylalanine degradation IV	Pathways	BioCyc	0.0089	0.1289	ChEBI:18050 ChEBI:17295	GLN PHE
TRNA-CHARGING-PWY	tRNA charging	Pathways	BioCyc	0.0422	0.1289	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-6219	indole-3-acetyl-amide conjugate biosynthesis	Pathways	BioCyc	0.0041	0.1289	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-1782	superpathway of indole-3-acetate conjugate biosynthesis	Pathways	BioCyc	0.0055	0.1289	ChEBI:18050 ChEBI:17295	GLN PHE
map00970	Aminoacyl-tRNA biosynthesis	Pathways	KEGG	0.0163	0.1930	ChEBI:18050 ChEBI:17295	C00064 C00079
map02010	ABC transporters	Pathways	KEGG	0.0230	0.1930	ChEBI:18050 ChEBI:17295	C00064 C00079
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.0617	0.2702	ChEBI:17295 ChEBI:18050	ECMDB00159 ECMDB00641
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.9329	0.9329	ChEBI:17295 ChEBI:18050	ECMDB00159 ECMDB00641
map01100	Metabolic pathways	Pathways	KEGG	0.9138	0.9448	ChEBI:18050 ChEBI:17295	C00064 C00079
For random forest model							
ID Annotation	Annotation	Category	Database	p-value	FDR correction	Submitted IDs	Matching IDs
map01100	Metabolic pathways	Pathways	KEGG	0.8758	0.9094	ChEBI:18050 ChEBI:17295 ChEBI:17191 ChEBI:17066	C00064 C00079 C00407 C01089
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.0003	0.0050	ChEBI:17295 ChEBI:17191 ChEBI:18050	ECMDB00159 ECMDB00172 ECMDB00641
SMP00019	Transcription/Translation	SMPDB Pathway	HMDB	0.0009	0.0096	ChEBI:17295 ChEBI:17191 ChEBI:18050	HMDB00159 HMDB00172 HMDB00641
map00970	Aminoacyl-tRNA biosynthesis	Pathways	KEGG	0.0036	0.0820	ChEBI:18050 ChEBI:17295 ChEBI:17191	C00064 C00079 C00407
map02010	ABC transporters	Pathways	KEGG	0.0061	0.0820	ChEBI:18050 ChEBI:17295 ChEBI:17191	C00064 C00079 C00407
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.0163	0.1383	ChEBI:17295 ChEBI:17191 ChEBI:18050	ECMDB00159 ECMDB00172 ECMDB00641
TRNA-CHARGING-PWY	tRNA charging	Pathways	BioCyc	0.0062	0.1463	ChEBI:18050 ChEBI:17191 ChEBI:17295	GLN ILE PHE
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.9265	0.9265	ChEBI:17295 ChEBI:17191 ChEBI:18050	ECMDB00159 ECMDB00172 ECMDB00641
PWY-6220	jasmonoyl-amino acid conjugates biosynthesis I	Pathways	BioCyc	0.0029	0.1463	ChEBI:17191 ChEBI:17295	ILE PHE
COMPLETE-ARO-PWY-1	superpathway of phenylalanine, tyrosine, and tryptophan biosynthesis	Pathways	BioCyc	0.0043	0.1463	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-6318	phenylalanine degradation IV	Pathways	BioCyc	0.0115	0.1463	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-1782	superpathway of indole-3-acetate conjugate biosynthesis	Pathways	BioCyc	0.0072	0.1463	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-6219	indole-3-acetyl-amide conjugate biosynthesis	Pathways	BioCyc	0.0054	0.1463	ChEBI:18050 ChEBI:17295	GLN PHE
PWY-6233	jasmonoyl-amino acid conjugates biosynthesis II	Pathways	BioCyc	0.0021	0.1463	ChEBI:18050 ChEBI:17191	GLN ILE
map01064	Biosynthesis of alkaloids derived from ornithine, lysine and nicotinic acid	Pathways	KEGG	0.0314	0.1696	ChEBI:17295 ChEBI:17191	C00079 C00407
map00966	Glucosinolate biosynthesis	Pathways	KEGG	0.0377	0.1696	ChEBI:17295 ChEBI:17191	C00079 C00407
map00960	Tropane, piperidine and pyridine alkaloid biosynthesis	Pathways	KEGG	0.0323	0.1696	ChEBI:17295 ChEBI:17191	C00079 C00407
SMP00059	Urea Cycle	SMPDB Pathway	ECMDB	0.6315	0.7157	ChEBI:17295 ChEBI:17191	ECMDB00159 ECMDB00172
map01110	Biosynthesis of secondary metabolites	Pathways	KEGG	0.9402	0.9402	ChEBI:17295 ChEBI:17191	C00079 C00407