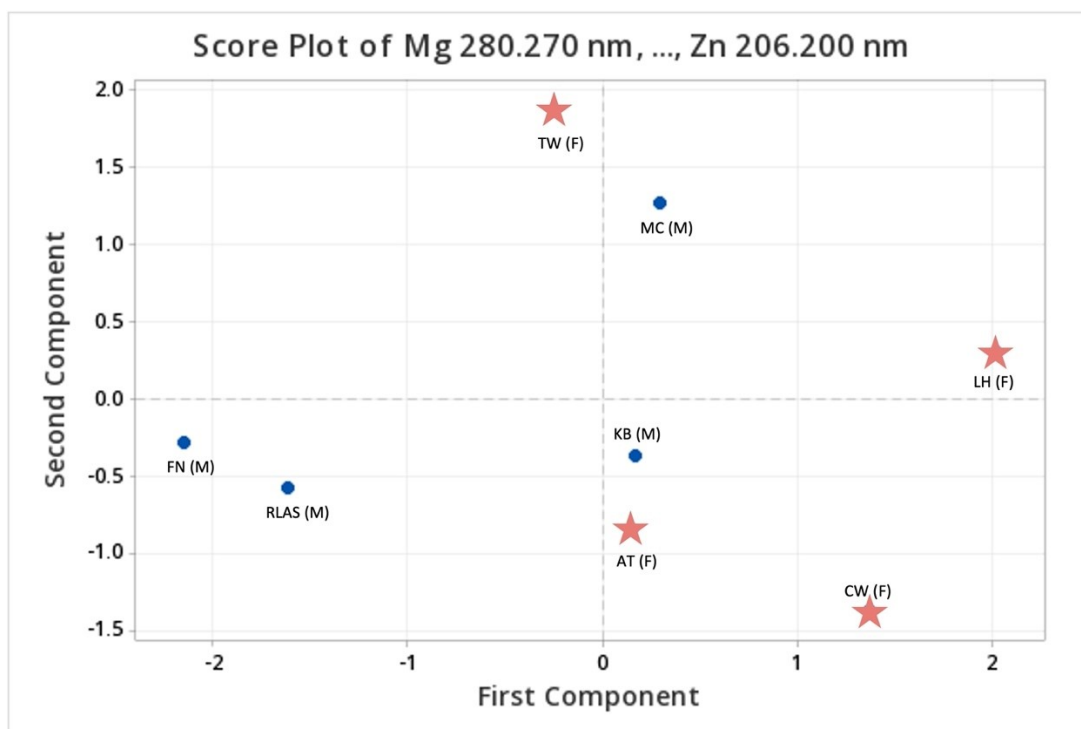


## Supplementary Information

### Validation and Expansion of Sex Determination Method Through Analysis of Human Hair Using Electrothermal Vaporization Coupled to Inductively Coupled Plasma Optical Emission Spectrometry

Margaret MacConnachie<sup>a</sup> and Diane Beauchemin

**Fig. S1** PCA score plot using Mg, S, Sr, and Zn as predictors. Red stars: female, blue circles: male.



**Table S1** Predictions by LDA for the eight samples used as the statistical model with Mg, S, Sr, and Zn as predictor elements.

Sample	Known Group	Probabilities		Predicted Group
TW	Female	Male	0.000	Female
		Female	1.000	
LH	Female	Male	0.000	Female
		Female	1.000	
CW	Female	Male	0.000	Female
		Female	1.000	
AT	Female	Male	0.000	Female
		Female	1.000	
FN	Male	Male	1.000	Male
		Female	0.000	
KB	Male	Male	1.000	Male
		Female	0.000	
RLAS	Male	Male	1.000	Male
		Female	1.000	
MS	Male	Male	1.000	Male
		Female	0.000	

**Table S2** Predictions by LDA for the 11 dyed hair samples, with undyed samples used as the statistical model with Mg, S, Sr, and Zn as predictor elements.

Sample	Known Group	Probabilities		Predicted Group
AM	Female	Male	0.000	Female
		Female	1.000	
JT	Female	Male	0.000	Female
		Female	1.000	
TH	Female	Male	0.000	Female
		Female	1.000	
SU	Female	Male	0.000	Female
		Female	1.000	
BS	Female	Male	0.000	Female
		Female	1.000	
EV	Female	Male	0.000	Female
		Female	1.000	
LN	Female	Male	0.000	Female
		Female	1.000	
MM	Female	Male	0.000	Female
		Female	1.000	
AN	Male	Male	0.000	Female
		Female	1.000	
AC	Male	Male	0.000	Female
		Female	1.000	
DH	Male	Male	0.000	Female
		Female	1.000	

**Table S3** Predictions by LDA for both dyed and undyed hair samples, with dyed female samples and undyed male samples in the training set, using Mg, S, Sr, and Zn as predictor elements.

Sample	Known Group	Dyed?	Probabilities		Predicted Group
TW	Female	Undyed	Male	0.997	Male
			Female	0.003	
LH	Female	Undyed	Male	0.922	Male
			Female	0.078	
CW	Female	Undyed	Male	0.002	Female
			Female	0.998	
AT	Female	Undyed	Male	0.962	Male
			Female	0.038	
SPN2	Male	Undyed	Male	0.998	Male
			Female	0.002	
BS	Female	Dyed	Male	0.075	Female
			Female	0.925	
EV	Female	Dyed	Male	0.000	Female
			Female	1.000	
LN	Female	Dyed	Male	0.019	Female
			Female	0.981	
MM	Female	Dyed	Male	0.088	Female
			Female	0.912	
AN	Male	Dyed	Male	0.028	Female
			Female	0.972	
AC	Male	Dyed	Male	0.164	Female
			Female	0.936	
DH	Male	Dyed	Male	0.000	Female
			Female	1.000	

**Table S4** Predictions by LDA for both dyed and undyed hair samples, with only dyed samples in the training set with Mg, S, Sr, and Zn as predictor elements.

Sample	Known Group	Dyed?	Probabilities		Predicted Group
BS	Female	Dyed	Male	0.000	Female
			Female	1.000	
EV	Female	Dyed	Male	1.000	Male
			Female	0.000	
LN	Female	Dyed	Male	0.000	Female
			Female	1.000	
MM	Female	Dyed	Male	0.000	Female
			Female	1.000	
DH	Male	Dyed	Male	0.000	Female
			Female	1.000	
TW	Female	Undyed	Male	0.000	Female
			Female	1.000	
LH	Female	Undyed	Male	0.000	Female
			Female	1.000	
CW	Female	Undyed	Male	0.000	Female
			Female	1.000	
AT	Female	Undyed	Male	0.000	Female
			Female	1.000	
FN	Male	Undyed	Male	0.000	Female
			Female	1.000	
KB	Male	Undyed	Male	0.000	Female
			Female	1.000	
RLAS	Male	Undyed	Male	0.000	Female
			Female	1.000	
MS	Male	Undyed	Male	0.000	Female
			Female	1.000	

**Table S5** Predictions by LDA for the eight samples used as the statistical model with Cd, Ce, Fe, and Sn as predictor elements.

Sample	Known Group	Probabilities		Predicted Group
TW	Female	Male	0.000	Female
		Female	1.000	
LH	Female	Male	0.000	Female
		Female	1.000	
CW	Female	Male	0.000	Female
		Female	1.000	
AT	Female	Male	0.000	Female
		Female	1.000	
FN	Male	Male	1.000	Male
		Female	0.000	
KB	Male	Male	1.000	Male
		Female	0.000	
RLAS	Male	Male	1.000	Male
		Female	0.000	
MS	Male	Male	1.000	Male
		Female	0.000	

**Table S6** Predictions by LDA for the 11 dyed hair samples, with undyed samples used as the statistical model with Cd, Ce, Fe, and Sn as predictor elements.

Sample	Known Group	Probabilities		Predicted Group
AM	Female	Male	0.000	Female
		Female	1.000	
JT	Female	Male	0.000	Female
		Female	1.000	
TH	Female	Male	0.000	Female
		Female	1.000	
SU	Female	Male	0.000	Female
		Female	1.000	
BS	Female	Male	0.000	Female
		Female	1.000	
EV	Female	Male	0.000	Female
		Female	1.000	
LN	Female	Male	0.000	Female
		Female	1.000	
MM	Female	Male	0.000	Female
		Female	1.000	
AN	Male	Male	1.000	Male
		Female	0.000	
AC	Male	Male	1.000	Male
		Female	0.000	
DH	Male	Male	1.000	Male
		Female	0.000	

**Table S7** LDA classification of samples belonging to close family groups, both with and without the inclusion of close family members in the training set, using Cd, Ce, Fe, and Sn as predictor elements.

Family	Sample	Known Group	Inclusion of family members in model?	Probabilities		Predicted Group
1	MT	Female	No	Male	0.000	Female
				Female	1.000	
	AT	Female	No	Male	0.000	Female
				Female	1.000	
2	MT	Female	Yes	Male	0.000	Female
				Female	1.000	
	AT	Female	Yes	Male	0.000	Female
				Female	1.000	
2	MC	Male	No	Male	1.000	Male
				Female	0.000	
	CC	Female	No	Male	0.000	Female
				Female	1.000	
	RS	Female	No	Male	0.000	Female
				Female	1.000	
MC	Male	Yes	Male	1.000	Male	
			Female	0.000		
CC	Female	Yes	Male	0.826	Male	
			Female	0.174		
RS	Female	Yes	Male	0.000	Female	
			Female	1.000		