## **Electronic Supplementary Information**

## Combination of LIBS-based elemental analysis and near-infrared molecular fingerprinting of bile juice to enhance identification of gallbladder cancer

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**Figure S1**. Two-dimensional plots showing the combinations of third PC score- $A_{Mg}/A_{Na}$  (a), third PC score- $A_{Na}/A_K$  score (b), fourth PC score- $A_{Mg}/A_{Na}$  (c), fourth PC score- $A_{Na}/A_K$  (d), fifth PC score- $A_{Mg}/A_{Na}$  (e), and fifth PC score- $A_{Na}/A_K$  (f).

LIBS input	NIR input	Accuracy (%)	LIBS input	NIR input	Accuracy(%)
A <sub>Mg</sub> /A <sub>Na</sub>	1 <sup>st</sup> score	$83.6\pm19.7$	A <sub>Na</sub> /A <sub>K</sub>	1 <sup>st</sup> score	$81.2 \pm 21.5$
	2 <sup>nd</sup> score	$90.9 \pm 16.3$		2 <sup>nd</sup> score	$93.6 \pm 13.7$
	3 <sup>rd</sup> score	$91.6 \pm 15.4$		3 <sup>rd</sup> score	87.9 ± 18.3
	4 <sup>th</sup> score	$82.5\pm20.4$		4 <sup>th</sup> score	$88.6 \pm 18.0$
	5 <sup>th</sup> score	$90.0 \pm 16.9$		5 <sup>th</sup> score	87.7 ± 18.6
	1 <sup>st</sup> ~5 <sup>th</sup> scores	$90.7 \pm 16.2$		1 <sup>st</sup> ~5 <sup>th</sup> scores	88.8 ± 17.4

Table S1. Accuracies when different LIBS and NIR variables are combined for k-NN