

## 采用激光光谱早期诊断癌症

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我们将八种(即,肝癌、肺癌、食道癌、胃癌、白血病、骨肉瘤、乳腺癌和膀胱癌)癌症患者,每人采静脉血 2 ml,为了对照,同时在健康人身上也采 2 ml 静脉血,在同样条件下,作电泳分

Table 1 Comparison between conclusion of spectra and conclusion of doctor obtained through clinic

code name	patient's condition	doctor's conclusion	conclusion of spectra†
01001	tuberculosis cancer	++	**
01002	tuberculosis cancer	++	**
01003	tuberculosis cancer	+	*
01004	tuberculosis cancer	+	*
01005	tuberculosis cancer	+++	***
01006	tuberculosis cancer	+	*
01007	tuberculosis cancer	+	*
01008	tuberculosis cancer	++	**
01009	tuberculosis cancer	+++	***
01010	tuberculosis cancer (to have medicine)	++	*
01011	tuberculosis cancer	++	**
02001	esophagus cancer	++	**~***
02002	esophagus cancer	+++	***
02003	esophagus cancer	+++	***
02004	esophagus cancer	+++	***
02005	esophagus cancer	+++	***
02006	esophagus cancer	+++	***
02007	esophagus cancer	+	*
02008	esophagus cancer	+++	***
02009	esophagus cancer	++	**
03001	liver cancer	+++	***
03002	liver cancer	+++	***
04001	stomach cancer	+++	***
04002	stomach cancer (to have medicine)	+++	**
06001	white blood cancer	+	*
07001	bladder cancer	+	*

† The conclusions of spectra are determined according to the ratio intensity of spectrum to Raman intensity of water.

\* or+earlier period, \*\*or++middle period, \*\*\*or+++later period.

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离,而后对不同个体(包括患者和健康人)的相同组份进行光谱研究。首次发现,他们的血清和血红蛋白中的个别组份的光谱有明显差异,特别是肺癌、食道癌和骨肉瘤患者同正常人的尤其不同,各种癌症患者之间的光谱也不同,晚期、中期和早期患者的光谱强度具有明显差异。以水的喇曼谱强度作内标,可以划分出早期、中期和晚期患者。本文作者们对将近二百例作了对照研究,所得结论与医生的临床结论基本一致(详见表1),准确率达到89%。作者们予期这种方法可以用于普查癌症。

实验阶段所得到的结论是:

- (1) 激光光谱早期诊断癌症是可行的;可以用于普查癌症。
- (2) 可以区分各种类型的癌症。
- (3) 可以用来检测癌症的特异组份(即癌症的标志物),采用光谱法检测癌症的特异组份,比电泳法更灵敏更准确,同时给出癌症的种类及早、中、晚期的差异。
- (4) 发现癌的特异组份是热不稳定的,当把它加温至约40°C时,它们的特征光谱立刻消失。这对于发展新药和热疗来说,提供了理论的和实验依据,对于研究癌阻断提供了新的启发。

我们的实验正在进行中,今后的研究主要是提供和完善普查方法,和研究癌基因。

这项工作得到了北京肿瘤医院哈献文教授,蚌埠康复中心李同度教授和中国人民解放军三〇一总医院部中和教授的指导和帮助。

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### Investigation on dignoses of earlier period cancer diseases using laser spectra

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#### Abstract

We have compared the different compositions of the blood for cancer patient with the composition of the same kind of the healthy person. To discover the spectra of them present obvious difference and the spectra for the blood of the different kind of the patient also present obvious differece, but the spectra of the specifieness compositions for earlier peiod cancer disease is same which close to spectrum of the That the method is used in the earlier period diagnoses is maybe the most good and can be used in checking widely. It is not only simple but also quick.

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