

Figure 3 Comparison of CD147 intensity between categories of clinicopathological variables in tumor biopsies.

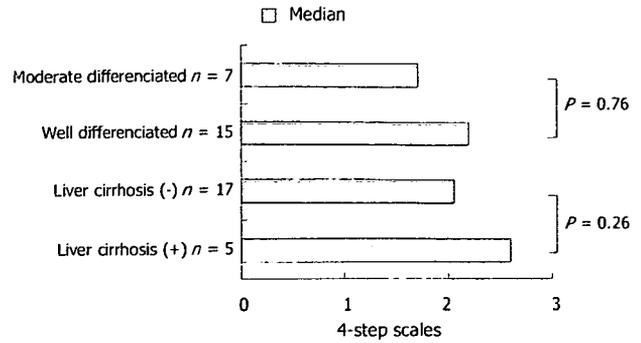


Figure 4 Comparison of the CD147 intensity in tumor biopsy specimens: cirrhosis and tumor differentiation.

associated with and without cirrhosis and between well-differentiated and moderately differentiated HCC, no significant difference was observed (Figure 4).

DISCUSSION

CD147 is an adhesion molecule that binds to endothelial cells and fibroblasts, and stimulates the expression of several matrix metalloproteinases associated with the invasiveness of HCC^[14,16]. In a recent study, a significantly positive correlation was identified between the CD147 immunostaining intensity and the histological grading and clinical stage of HCC^[17]. Moreover, this marker may be valuable to differentiate between benign liver nodules and HCC, especially in small lesions with good differentiation^[17]. Most previous reports were based on the analyses of surgically removed tissues. This study observed tumor nodules obtained by the 21G fine-needle aspiration kit before treatment. To enhance the diagnostic efficacy, the most sensitive detection of CD147 in HCC tissues was also investigated. Therefore, the tissue specimens were stained using microwave-stimulated processing with DAKO antigen retrieval solution. The antigenicity of the CD147 protein was activated with microwave-stimulated processing which resulted in the expression of CD147 in some non-tumor tissues. This result showed that the peritumoral tissues, pathologically diagnosed as the non-tumor tissue, may be related to the biological development of the malignant phenotype with CD147. Nevertheless, the CD147 expression in tumor lesions was significantly stronger, even in small tumors. Furthermore, the non-tumorous normal liver tissue and tumor tissue demonstrated significant differences in the expression of the antigen, even in small tumors measuring less than 15 mm in size. This indicates that this marker is therefore useful in the diagnosis of small HCC and also when considering the most appropriate treatment.

Previous studies have demonstrated that CD147 can potentially serve as a target for antitumor therapy. They showed that the CD147 expression could frequently be detected in the vast majority of human malignancies as well as in a subset of benign tumors. Nevertheless, there are significant differences both in the intensity and distribution of CD147 staining among different malignant tumors as well as benign lesions^[10]. In fact, tumors

expressing high levels of CD147 compared to their normal counterparts include carcinomas of the urinary bladder^[18], breast, lung^[19,20], oral cavity^[21], esophagus^[12], skin^[22], malignant lymphomas^[23,24], and malignant peripheral nerve sheath tumors^[25].

In this study, the staining intensity of CD147 was confined to cell membrane expression of this antigen. CD147 expressed on the tumor cell surface and stimulates nearby fibroblasts and endothelial cells^[26-28]. CD147 has been shown to be an important mediator of tumor-stroma cross-talk, based on the findings that it mediates not only MMP production but also angiogenesis via the stimulation of vascular endothelial growth factor (VEGF)^[29], and anchorage-independent growth and multi-drug resistance in a hyaluronan-dependent fashion^[7,30,31]. Further investigation is necessary to examine the expression of CD147 associated with fibrosis.

In this study, expression of CD147 in HCC biopsies was much stronger than the peritumoral tissue. This result may illustrate the intensity of CD147 expression in a tumor biopsy is rare in peritumoral tissues.

The CD147 expression was higher in the HCC specimens from patients with lower levels of serum AST and γ -GTP. This result may indicate that the CD147 expression of HCC can thus be determined even when the liver function is weak.

In this study, the HCC tissue biopsy specimens were small in size, therefore we could not use an automated method to objectively evaluate the expression of CD147. We therefore require further examinations be used to evaluate the automated method.

In conclusion, HCC tissue biopsy specimens, even from small tumors, expressed CD147 protein at significantly higher levels than non-tumorous liver tissue. The immunohistochemical analysis of the murine monoclonal antibody, MA12C3, is very useful for the detection of HCC in even needle biopsy specimens. Therefore, CD147 can potentially serve as a useful target for cancer detection in HCC.

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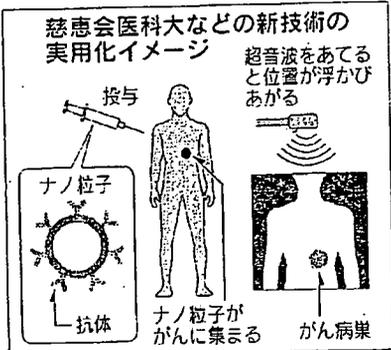
【第三種郵便物認可】

超音波照射ががん識別

慈恵会医科大など 基礎技術を開発

東京慈恵会医科大学と検査装置メーカーのアロカ、東京理科大学の共同研究チームは体内に投与した微粒子に超音波をあててがんを識別する基礎技術を開発した。肝がんを模した実験装置などで基本的な機能を確かめた。マウスなどの動物実験で効果や安全性を確認し、微小ながんでも本体を正確に見つけられる造影剤として実用化を目指す。

造影剤に微粒子活用



研究チームは慈恵会医科大の大川清教授と松浦知和講師、東京理科大の土屋好司客員研究者ら。グルコースを主成分とした界面活性剤に六フッ化硫黄のガスを噴射すると、ガスを界面活性剤で包んだ最小で直径二百ナノメートル（ナノは十億分の一）の微粒子ができる。これを生体内に入れて超音波の

造影剤として使う。マウスに投与する実験では副作用はみられなかった。人工材料に肝がん細胞を培養した実験モデルを作り、造影実験をした。微粒子を流し込むと約十分後には肝がんの中に微粒子が入り込み、洗い流した後も吸着していた。従来の造影剤では吸着せずにすくなくなってしまう。

装置（PET）などでも診断ができると期待して、見極めにくい微小がんの識別を可能にする。情報通信研究機構は、濃度を二十四時間測定できるセンサー装置の開発した。24時間利用が可能。炭素-12キロ先濃度も測定可能。情報機構

骨減少・炎症を抑制

東京医科歯科大など 免疫疾患の新薬候補

東京医科歯科大学の高柳広教授と朝霧成幸講師、日本ケミファなどの研究チームは関節リウマチや多発性骨硬化症などの新たな治療薬となる候補の物質を突き止めた。骨の減少と免疫の過剰な働きによる炎症の両方を抑

骨減少・炎症を抑制する新薬候補。研究チームは関節リウマチや多発性骨硬化症などの新たな治療薬となる候補の物質を突き止めた。骨の減少と免疫の過剰な働きによる炎症の両方を抑

カテプシンKには免疫細胞を活性化する働きがある。試作した薬は骨の吸収を促す破骨細胞の働きを抑えるだけでなく、炎症を抑制できた。関節リウマチなどを治療できる可能性がある。

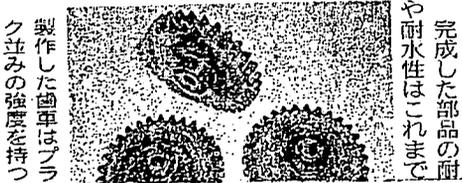
カテプシンKの阻害薬は米ベンチャー企業と協力をし、多発性骨腫瘍の治療薬として臨床試験を計画中。がんが骨に転移する際に骨を壊す症状を抑制できるとみている。さらに同阻害薬は、免疫機能を抑える働きがある。

研究結果は二月一日付の米科学誌サイエンスに掲載される。神戸大学、チェコ国立畜産研究所との共同成果で、米科学誌サイエンスに二日掲載される。核小体はすべての細胞

木材から歯車・ホルト

術を開発した。従来の工業用プラスチックと同レベルの強度や耐熱性を維持でき、原油資源の節約や二酸化炭素（CO₂）の削減に役立つ新技術として実用化

中日精工、廃材を活用 原油節約・CO₂削減



完成した部品の耐や耐水性はこれまでと変わらない。製作した歯車はプラスチック並みの強度を持つ

成長に「核小体」不可欠

理研が解明 不妊治療に応用へ。核小体はすべての細胞

大河内 荏原が 大河内記念 理事長は 日、生産工学 分野の研究 業績を上げた 贈る大河内 年度受賞者

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