

直线偏振光近红外线照射对原代培养的兔软骨细胞增殖的影响 [\(点击查看pdf全文\)](#)

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Title: Effects of linear polarized infrared light irradiation on proliferation of primary cultured rabbit articular chondrocytes

作者: [李海洋](#); [王小平](#); [贺牡丹](#); [李雅兰](#)

Author(s): -

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摘要: 目的观察不同强度直线偏振光近红外线(超激光)照射诱导软骨细胞增殖效果,探讨超激光照射对兔软骨细胞增殖的影响。

方法采用输出功率为0% (0mW)、20% (360mW)、40% (720mW)、60% (1080mW)、80% (1440mW)和100% (1800mW)

的超激光对原代培养的兔关节软骨细胞进行5min/d连续5d的照射,然后采用CCK-8法检测细胞活力。结果超激光强度

60%组D450值为 1.88 ± 0.11 ,80%组D450值为 1.99 ± 0.05 ,分别与对照组D450值 0.95 ± 0.38 比较均有显著性差异($P < 0.05$);与对照组

D450值比较,超激光强度20%、40%及100%组D450值虽有增高但无显著性差异($P > 0.05$)。与对照组相比,超激光照射能诱导软骨

细胞活力增加,20%~80%四组细胞活力增加的比率分别为 $(48.75 \pm 15.4)\%$ 、 $(67.02 \pm 29.61)\%$ 、 $(97.93 \pm 11.57)\%$ 和 $(108.52 \pm$

$5.81)\%$,但随着照射强度增加至100%时,细胞活力增加的比率下降,比率为 $(62.84 \pm 31.12)\%$ 。结论直线偏振光近红外线照射

对软骨细胞有促增殖作用,直线偏振光近红外线照射对细胞的增殖作用具有强度依赖性,照射强度为80% (1440mW)软骨细胞

活力增加效果最好。

Abstract: Objective To investigate the effect of linear polarized infrared light irradiation on the proliferation of primary cultured rabbit articular chondrocytes irradiation. Methods Primary cultured rabbit articular chondrocytes were irradiated with linear polarized infrared light irradiation (Super Lizer) at the power intensity of 20% (360mW) to 100% (1800mW) for 5 min per day for 5 days, and CCK-8 assay was used to measure the proliferative activity of the chondrocytes after the exposures. Results The D450 values of the cells irradiated at the power intensity of 60% (1080mW) and 80% (1440mW) (1.88 ± 0.11 and 1.99 ± 0.05 , respectively) were significantly greater than that of the control cells (0.95 ± 0.38 , $P < 0.05$). The irradiation with Super Lizer at lower (20%, 360mW and 40%, 720mW) or higher (100%, 1800mW) power intensities did not cause significant increases of the D450 values. Compared with the control group, Super Lizer irradiation at the power intensities of 20%, 40%, 60%, and 80% resulted in increment ratios of chondrocyte viability of $(48.75 \pm 15.4)\%$, $(67.02 \pm 29.61)\%$, $(97.93 \pm 11.57)\%$, and $(108.52 \pm 5.81)\%$, respectively, but at 100% power intensity (1800mW), the irradiation caused a lowered

[导航/NAVIGATE](#)

[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

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chondrocyte viability
increment ratio of $(62.84 \pm 31.12)\%$. Conclusion Linear polarized infrared light irradiation can promote the proliferation of chondrocytes in an intensity-dependent manner, and the strongest effect occurs with the irradiation power intensity of 80% (1440mW).

参考文献/REFERENCES

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