

研究業績 英文表記

和文	
表題	凍結処理を施した神経異種移植による神経再生
著者名	大澤得二 ¹⁾ 、井出千束 ²⁾ 、遠山稿二郎 ²⁾
所属	1) 岩手医科大学歯学部口腔解剖学第1講座 2) 岩手医科大学医学部解剖学第2講座
英文	
Title	Nerve regeneration through cryo-treated xenogeneic nerve grafts.
Author	Tokuji OSAWA ¹⁾ , Chizuka IDE ²⁾ and Koujiro TOHYAMA ²⁾
Affiliation	1) Department of Oral Anatomy, Iwate Medical University School of Dentistry 2) Department of Anatomy, Iwate medical University School of Medicine

Abstract	<p>Cryo-treated nerves whose Schwann cells had been killed by repeated freezing and thawing were xenogenically grafted into sciatic nerves from rats (Wistar, as donor) to mice (ddy strain, as recipient) to examine whether Schwann cell basal lamina tubes of cryo-treated xenogeneic grafts were effective conduits for regenerating axons. For comparison and evaluation of the effectiveness of this technique, experiments using grafts without the cryo-treatment were carried out.</p> <p>Cells in cryo-treated xnografts degraded into cell debris immediately after grafting and then were phagocytized by macrophages. After the cellular components had been removed from the graft, Schwann cell basal laminae remained intact in situ, serving as conduits for the regenerating axons. The process of nerve regeneration was almost the same as that observed in cryo-treated auto- and allografts, except that the regeneration was slightly delayed in the xenogeneic graft. In contrast, an extensive cell infiltration occurred in the non-treated grafts. It appeared that the donor's Schwann cells in the graft deteriorated due to immunological reactions and were finally eliminated by macrophages, leaving their basal laminae undamaged in situ. The initiation of nerve regeneration including perineurial sheath formation in non-treated grafts was, therefore, significantly delayed, but once begun, it proceeded in the same manner as in the cryo-treated grafts.</p> <p>These findings strongly indicate that Schwann cell basal laminae can serve as effective pathways for regenerating axons even in the xenograft. Moreover, cryo-treated xenogeneic grafts are more desirable than non-treated ones, since dead Schwann cells in the former can be removed in the early period (4-14 days) from the graft without causing any immunological reaction, thus resulting in the facilitation of nerve regeneration.</p>
keyword	nerve regeneration, Schwann cell basal lamina, xenograft

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