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**Figure 1.** Laminectomy of rat, the procedure involve (a) the hemisection of spinal cord (right side) – modified from Sonohata, M., et al. [31] at the height of the vertebra T8 – modified from Barnes, D. [32] .

**Figure 2.** Representative diagram of the procedure for obtaining PES, the black circles mark the electrodes zone for measurements, and red circle mark the injured zone, modified from Sonohata, M., et al [31].

**Figure 3.** Somatosensory evoked potentials [16] obtained *from two different rats that are considered representative results for all tested specimens. Figures 3a and 3b respectively show the behavioral trends of group 1 and 2.* These figures show similar behaviors. ***Before the laminectomy:*** (a) channel 1 and (b) channels 1 and 2; it is possible to observe the positive and negative components of the sciatic nerve of the rat; and immediately ***after the injury:*** (a) channel 2 and (b) channels 3 and 4. Note that electrical activity decays after the laminectomy.

**Figure 4.** Somatosensory evoked potential [16] measured 5 days after the injury in several points of the sciatic nerve for the group one (implant) of rats. Note that electrical activity begins to appear.

**Figure 5.** Somatosensory evoked potentials [16] obtained 30 days after the injury for the group two (no implant). In contrast to figure 4, in this figure there is no electrical activity for rats without implant.

**Figure 6.** Somatosensory evoked potentials [16] obtained 30 days after the injury for group 1 (implant). There is significant electric activity such that the potentials resemble those taken initially (before surgery). *The two subfigures represent the result for two different rats that simultaneously represent the general tendency of group 1.*

**Figure 7.** Progressive SEP data of rats across the experiment: a) before and after laminectomy, b) Group 2, 30 days after surgery, c) and d) Group 1 after 30 days. All channels and components are clearly shown.

**Figure 8.** Images obtained from Neurofilament H stain, showing cells differentiated to neurites in red and nucleus in blue. Original magnification a) 10x, and b) 20x.

**Figure 9.** Hydrolysis kinetics of CTS by lysozyme, a) pH 5, b) pH 7.

**Figure 10.** Hydrolysis kinetics of CTS-g-GMA by lysozyme, a) pH 5, b) pH 7.

**Figure 11.** Hydrolysis kinetics of (CTS-g-GMA)-X by lysozyme, a) pH 5, b) pH 7.

**Table 1.**

Polymer	P (mol m <sup>-1</sup> s <sup>-1</sup> Pa <sup>-1</sup> )	Polymer	P (mol m <sup>-1</sup> s <sup>-1</sup> Pa <sup>-1</sup> )
Z11B	2.89 x 10 <sup>-15</sup>	Z11A	6.31 x 10 <sup>-15</sup>
Z12B	---	Z12A	9.71 x 10 <sup>-15</sup>
Z13B	2.59 x 10 <sup>-15</sup>	Z13A	3.51 x 10 <sup>-15</sup>
Z14B	1.19 x 10 <sup>-15</sup>	Z14A	1.42 x 10 <sup>-14</sup>

**Table 2.**

Polymer	P (mol m <sup>-1</sup> s <sup>-1</sup> Pa <sup>-1</sup> )	Polymer	P (mol m <sup>-1</sup> s <sup>-1</sup> Pa <sup>-1</sup> )
Polyester <sup>24</sup>	1.08 x 10 <sup>-12</sup>	Milk serum:Glycerol (15:1) <sup>24</sup>	2.92 x 10 <sup>-13</sup>
CTS (in Acetic Acid) <sup>25</sup>	1.77 x 10 <sup>-13</sup>	Sodium Caseinate (CS) <sup>26</sup>	2.70 x 10 <sup>-12</sup>
CTS-CS <sup>27</sup>	5.5 x 10 <sup>-12</sup>	Beeswax <sup>24</sup>	5.71 x 10 <sup>-10</sup>
Z14B	1.19 x 10 <sup>-15</sup>	Z14A	1.42 x 10 <sup>-14</sup>

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**Table 1.** Permeability values of synthesized polymers.

**Table 2.** Permeability values of several polymers

## References

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