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RESEARCH ARTICLE

# Development and biological validation of a dexamethasone-loaded, polylactic acid-based 3D-printable composite filament for bone tissue engineering

## Supplementary File

**Table S1. Fourier-transform infrared spectroscopy peak assignment**

| Wavenumber ($cm^{-1}$) | Functional group and excitation |
|---|---|
| 3,000 | Asymmetric CH stretching of $CH_3$ |
| 2,950 | Symmetric CH stretching of $CH_3$ |
| 2,910 | CH stretching vibration |
| 2,850 | Symmetric C–H stretching |
| 1,750 | Ester carbonyl (C=O) stretching |
| 1,460 | Asymmetric $CH_3$ bending (deformation) |
| 1,390 | Symmetric $CH_3$ bending (deformation) |
| 1,360 | CH bending/$CH_3$ deformation |
| 1,260 | C–O stretching and C–O–C asymmetric stretching (ester group) |
| 1,190 | C–O–C asymmetric stretching |
| 1,120 | C–O stretching of ester group |
| 1,090 | C–O stretching |
| 1,040 | C–O stretching and CH deformation |
| 960 | Amorphous polylactic acid skeletal vibration |
| 920 | C–COO stretching/backbone vibration |
| 870 | $CH_3$ rocking |
| 760 | Crystalline-phase related skeletal vibration |
| 700 | Backbone deformation vibration |

Note: Based on Refs.[1-3]

## References

1. Socrates G. *Infrared and Raman Characteristic Group Frequencies: Tables and Charts*. 3rd ed. John Wiley & Sons; 2004.
2. Ruz-Cruz MA, Herrera-Franco PJ, Flores-Johnson EA, Moreno-Chulim MV, Galera-Manzano LM, Valadez-Gonzalez A. Thermal and mechanical properties of PLA-based multiscale cellulosic biocomposites. *J Mater Res Technol*. 2022;18:485-495.

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3. Grigora ME, Terzopoulou Z, Tsongas K, et al. Influence of reactive chain extension on the properties of 3D printed poly(lactic acid) constructs. *Polymers (Basel)*. 2021;13(9):1381.

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