



More Information Please

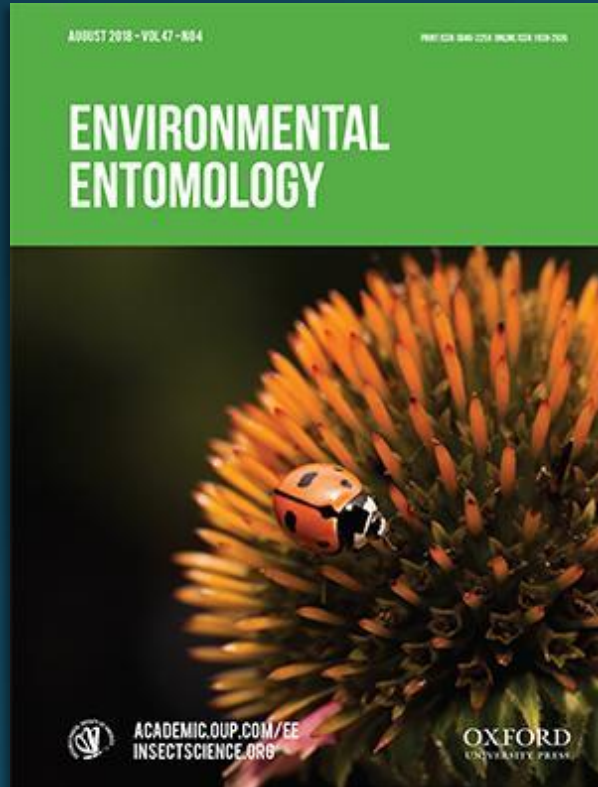
Open Access Linking in the 21st Century

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Overview

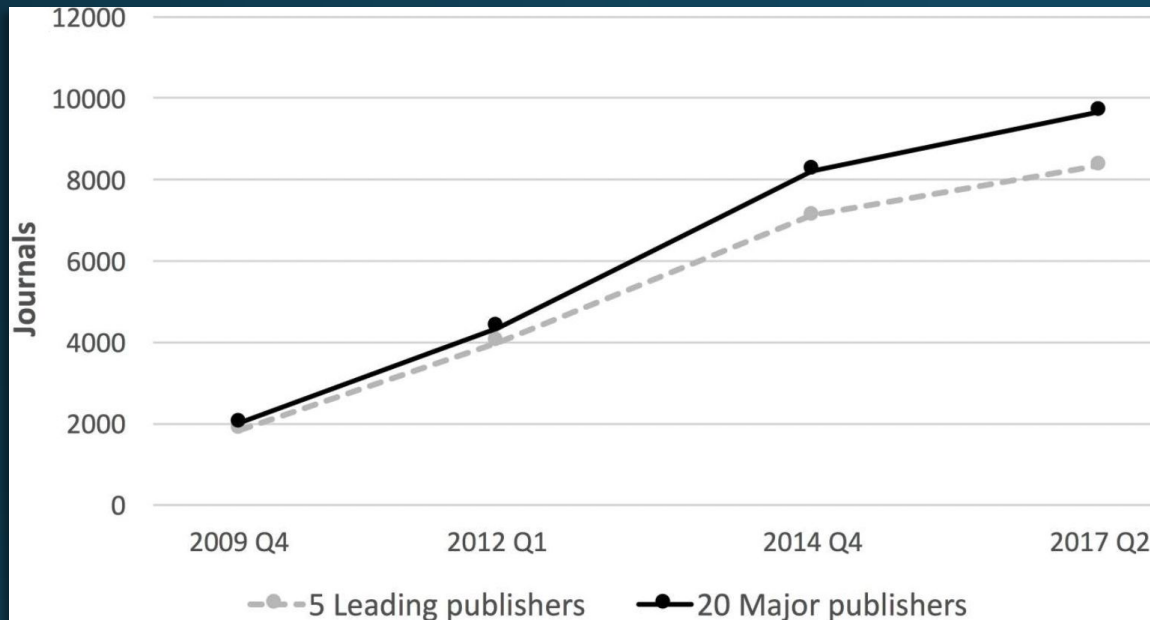
- Increasing amount of Open Access articles available in Hybrid OA journals
- Challenges in enabling discovery and access to Hybrid OA articles
- Article-level intelligence with blend of improved Unpaywall data provides the best hybrid OA linking solution

Hybrid OA journal

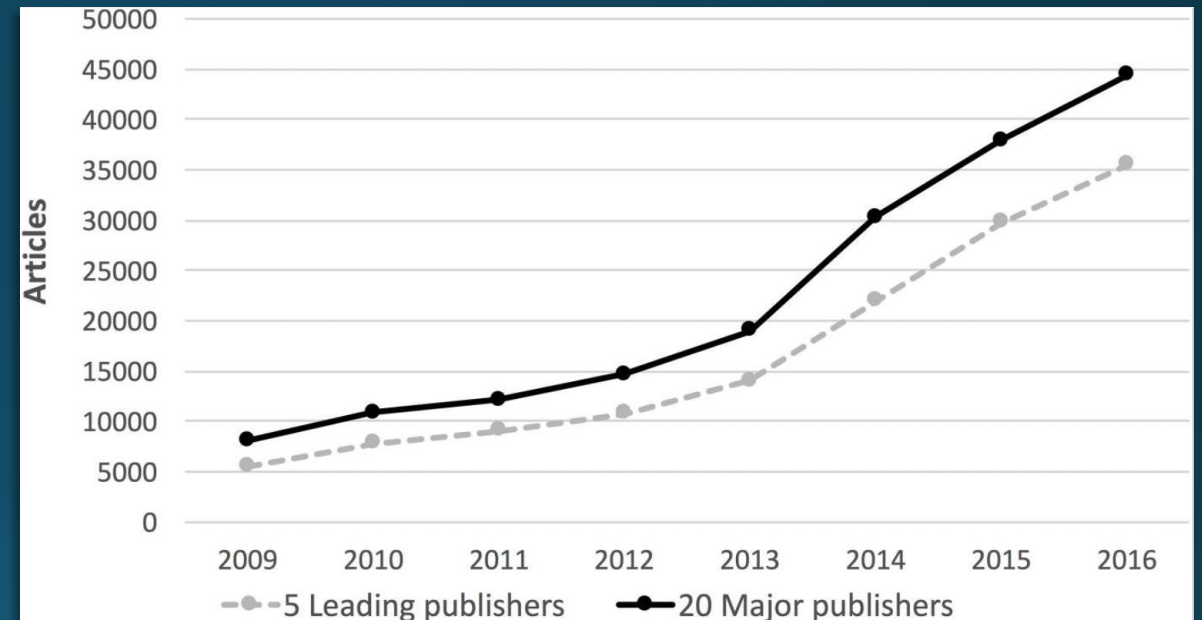


Hybrid OA journal: a subscription journal in which some articles are Open Access

Growth of hybrid OA



Growth of Hybrid OA Journals Among Major Publishers



Growth of Hybrid OA Articles Among Major Publishers

Hybrid OA challenges: awareness



CZ Portfolios

Positives

- Adds available content

Negatives

- Adding a hybrid journal to a “free journal” portfolio adds access in some cases, creates paywalls in others



CDI Collections

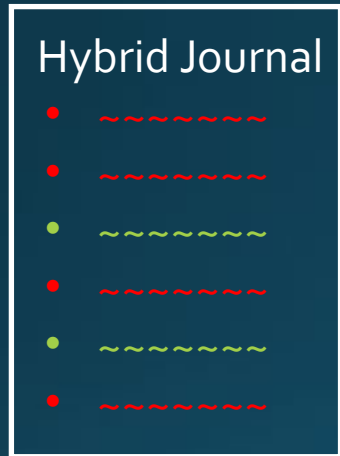
Positives

- surfaces index records of hybrid journals
- some OA articles have link in article

Negatives

- not all hybrid journals are part of a Collection
- not all articles from a journal in a Collection have links in article
- Not always possible to separate paywalled and OA content, leading to linking errors

Hybrid OA challenges: access



Some articles OA,
others paywalled

Link Resolver



Library Knowledge
Base

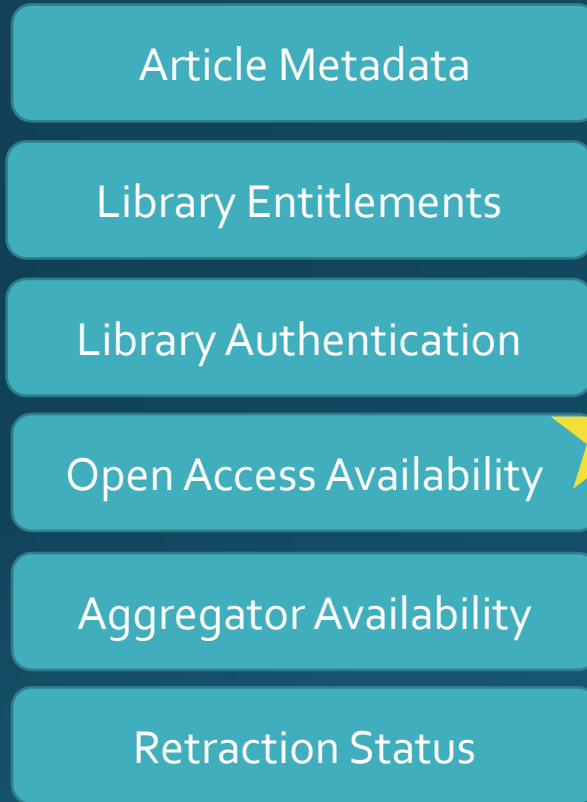
Link resolver can
only identify access
rights at the journal
level, not the article
level

Ultimately what is needed



**Being able to answer
the question: Is the
article Open Access?**

Article-level intelligence



Article Link



PDF Link

Identifier Based

Article Knowledge Bases

AI-Based Source Selection

Intelligent Links

Unpaywall as data source for Hybrid OA



- Project of OurResearch (formerly known as ImpactStory)
- Open database of +32MM free scholarly articles
- Harvested from over 50,000 publishers, repositories, and more
- Available as a browser extension
- Available API returns linking information

Unpaywall Added to LibKey Linking Algorithm 2021



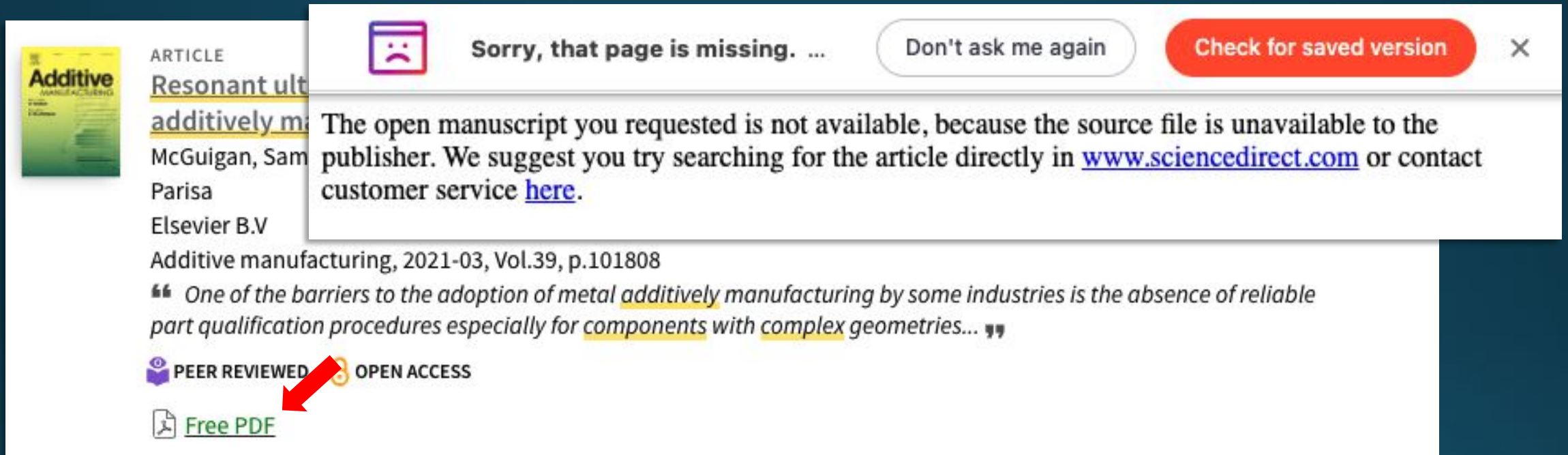
LibKey performed live API calls to Unpaywall to integrate linking data

Linking Issues Related to Unpaywall Data





- Broken links
- Linking to the wrong item
- Linking to paywalled content
- No link to PDF when PDF is available
- Linking to retracted articles

Unpaywall Broken Link Example



The image shows a screenshot of a web page with a broken link error message overlaid. The error message is a white box with a purple sad face icon, the text "Sorry, that page is missing. ...", and buttons for "Don't ask me again" and "Check for saved version". The background page is an article from Elsevier B.V. titled "Resonant ultrasonic non-destructive testing of metal additively manufactured components" by McGuigan, Sam and Parisa. The article is from "Additive manufacturing" journal, 2021-03, Vol.39, p.101808. A quote from the article is visible: "One of the barriers to the adoption of metal additively manufacturing by some industries is the absence of reliable part qualification procedures especially for components with complex geometries...". The article is marked as "PEER REVIEWED" and "OPEN ACCESS". A red arrow points to the "Free PDF" link, which is broken.

ARTICLE
Resonant ultrasonic non-destructive testing of metal additively manufactured components
McGuigan, Sam
Parisa
Elsevier B.V.
Additive manufacturing, 2021-03, Vol.39, p.101808
“ One of the barriers to the adoption of metal additively manufacturing by some industries is the absence of reliable part qualification procedures especially for components with complex geometries...” ”
PEER REVIEWED OPEN ACCESS
 [Free PDF](#)

 Sorry, that page is missing. ...
Don't ask me again Check for saved version X

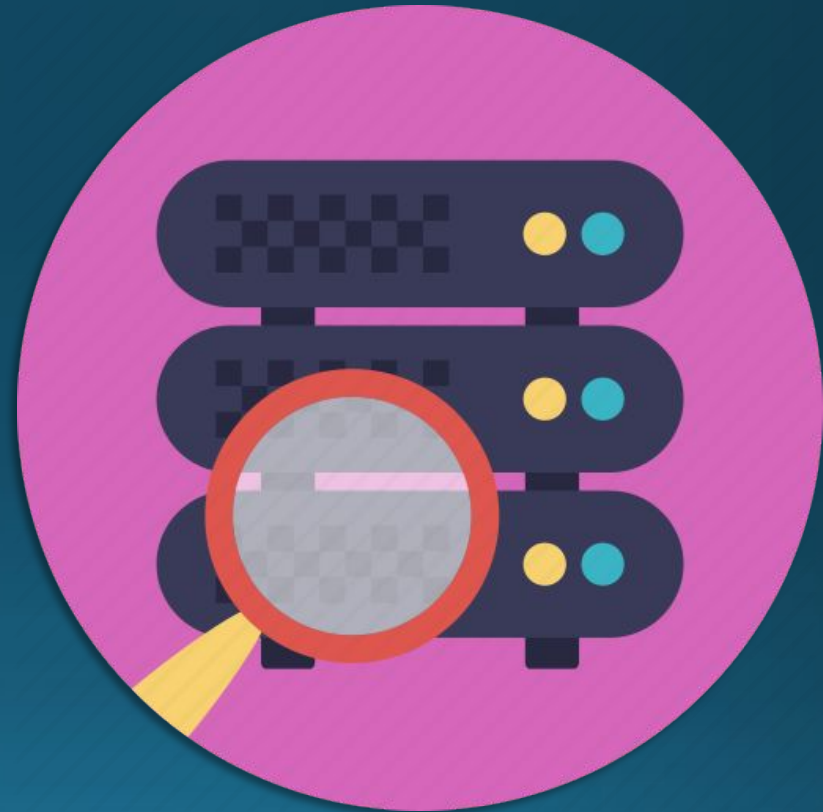
The open manuscript you requested is not available, because the source file is unavailable to the publisher. We suggest you try searching for the article directly in www.sciencedirect.com or contact customer service [here](#).

Identification, correction of Unpaywall problems

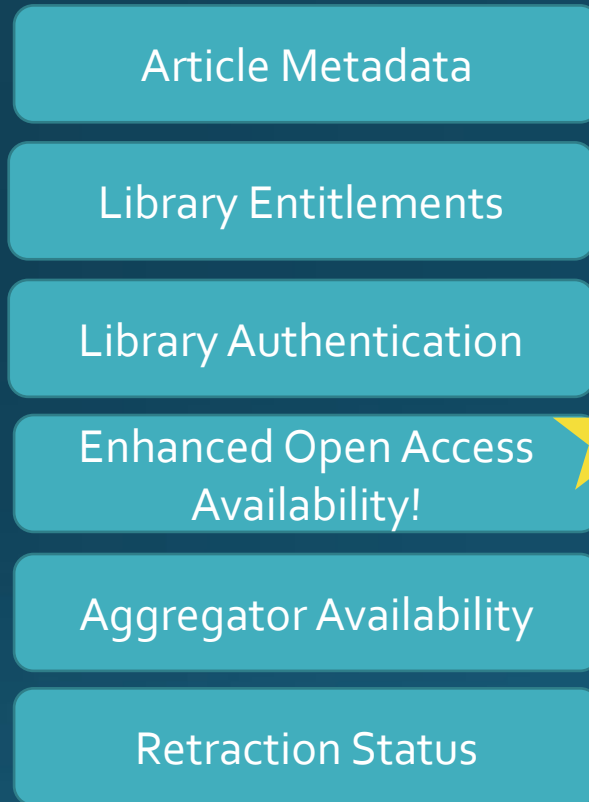
Locally loaded data, identified two causes of error:

- Crawling mechanism
- Patterning

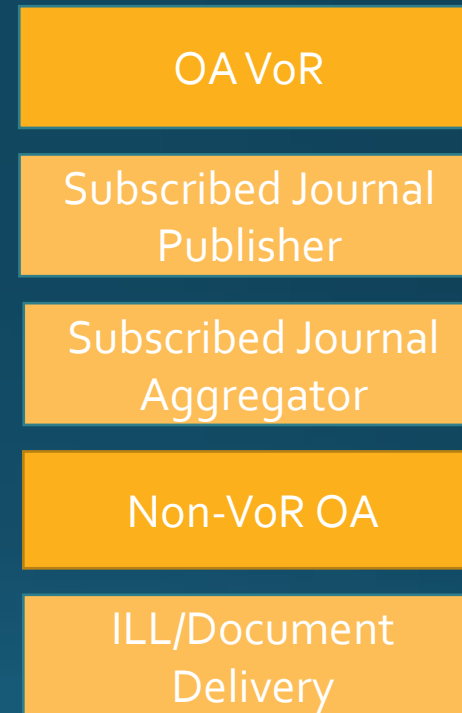
Third Iron operationally corrects for deficiencies in the Unpaywall dataset. This data is layered with other article intelligence used for linking.



Article-level intelligence



Article Knowledge
Bases



AI-Based Source
Selection



Article Link



PDF Link

Intelligent
Links

Identifier
Based

Example: Article Level Intelligence

Drug Loading, Drug Release and *In vitro* Degradation of Poly(Caprolactone) Electrospun

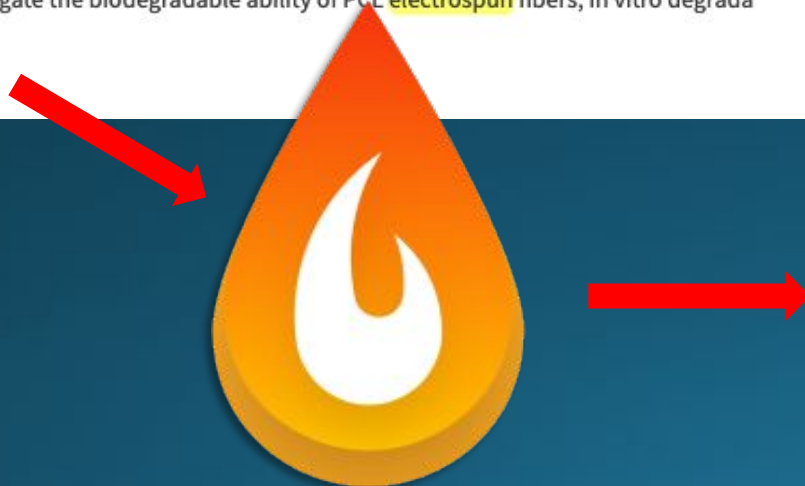
Lim, MM and Sultana, N

IEEE INTERNATIONAL CONFERENCE ON BIOMEDICAL ENGINEERING AND SCIENCES

2014 | 2014 IEEE CONFERENCE ON BIOMEDICAL ENGINEERING AND SCIENCES (IECBES) , pp.356-359

In this study, model drug of Fluorescein Isothiocyanate-Dextran (FD70S) was incorporated into poly(caprolactone) electrospun fibers. Drug loading was successful and drug release was measured by using microplate reader. The result showed FD70S was successfully released from PCL electrospun fibers. In order to investigate the biodegradable ability of PCL electrospun fibers, *in vitro* degradation was investigated for 107 days by immersing PCL electrospun fibers in phosphate buffer saline (PBS) which mimics extracellular fluid. Electrospun fibers degraded slowly and were not fully degraded. Fibers became more random and the average fiber diameters decreased from 350 nm to 240 nm after degradation of 107 days.

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Drug Loading, Drug Release and *In vitro* Degradation of Poly(Caprolactone) Electrospun Fibers

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Abstract— In this study, model drug of Fluorescein Isothiocyanate-Dextran (FD70S) was incorporated into poly(caprolactone) (PCL) electrospun fibers. Drug loading was successful and drug release was measured by using microplate reader. The result showed FD70S was successfully released from PCL electrospun fibers. In order to investigate the biodegradable ability of PCL electrospun fibers, *in vitro* degradation was investigated for 107 days by immersing PCL electrospun fibers in phosphate buffer saline (PBS) which mimics extracellular fluid. Electrospun fibers degraded slowly and were not fully degraded. Fibers became more random and the average fiber diameters decreased from 350 nm to 240 nm after degradation of 107 days.

Keywords—Poly(caprolactone) (PCL); electrospun fibers; Fluorescein Isothiocyanate-Dextran (FD70S); drug loading; *in vitro* drug release; *in vitro* degradation

I. INTRODUCTION

Over the past few decades, there has been considerable interest in developing biodegradable nanofibrous scaffolds as effective drug delivery devices and tissue engineering applications [1, 2]. Electrospun nanofibrous scaffolds can act as carrier for certain type of drugs, genes and growth factors [3, 4]. Polymers that are used to fabricate scaffold have to be biodegradable and non toxic. Many polymers have been used in drug delivery research to deliver the drug to targeted sites and increase the therapeutic benefits as well as minimize the side effects [5, 6]. There are a number of polymers used to fabricate scaffolds. These polymers include poly(lactic acid) (PLA), poly(caprolactone) (PCL) [2, 4, 7, 8], poly(glycolic acid) (PGA), poly(lactide-co-glycolide) (PLGA) and

Conventionally, drugs are taken by patients whether by swallowing pills or injections. According to US Food and Drug Administration (FDA), there are 100,000 of deaths yearly from drug prescriptions [14]. Conventional drug release displays first order kinetics. After a dose of drug was injected, drug level increases until a maximum effective level, then decreases. The drug is only active within a therapeutic range, between the maximum and minimum effective level. Besides, this will also leads to adverse drug reaction [15]. Adverse drug reaction is the fourth leading cause of death in America. Hence, there is a need to have a controlled drug release system where the drugs remain active constantly in therapeutic range. Based on others research, polymer-based systems have had a dramatic impact on safe and effective drug delivery. In this study, electrospun membrane of PCL polymer is investigated for drug delivery system. Parameters need to be optimized to fabricate better electrospun membrane and characterize it. Drug loading, *in vitro* drug release and *in vitro* degradation will be investigated.

II. MATERIALS AND METHODS

A. Materials

PCL with molecular weight 70,000–90,000, fluorescein isothiocyanate-dextran (FD70S), and phosphate buffer saline (PBS) were supplied from Sigma-Aldrich. Chloroform and acetic acid were used as solvents.

B. Methods

First, 0.05g of FD70S was dissolved in 2.5ml of acetic acid

Unlocking Hybrid OA

**Better Hybrid OA access:
Article-level linking
informed by multiple data
sources**

