

## Multiphoton Microscopy with Programmable Supercontinuum Pulses

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### Abstract

In the field of medicine, histopathology process is undertaken by pathologist. The aim of undertaking histopathology is to examine the existence or the possibility of a disease in the body tissue of a living thing. In addition, the process of histopathology is best performed on the specimen of body tissue taken during the surgery of a patient. Here, the process involves a series of activities where surgery helps to remove body tissues for examination. After the surgery, the body tissue removed is placed in a fixative place where no external toxicities can contaminate the specimen. This forms the basis for preparation of viewing of the tissue using microscope to examine the disease. However, if the body tissue is large, a pathologist is mandated to take a sample of the tissue and subject it for histopathology. Further, the process of chemical fixation is subjected to the tissue to help remove unwanted chemicals such as alcohol. Water is also removed from the sample through the process of dehydration through the use of a chemical known as xylene. Afterwards, the tissue is cut into slices where a very small slice is used in the examination of the disease. Alternatively, a section of the tissue can be frozen. A device known as microtome is used to slice the section frozen into thin slices. Staining is done on the frozen thin slice. The disadvantage of slice is that it is not stain free.

Histopathology, programmable supercontinuum, multiphoton microscopy, stain free.

## Introduction

The use of histopathology in the field of medicine has a long history, its development and

limited information regarding the cells in question thus attracting limited applications in biological investigations [7].

Microscopes like the MRI do not possess similar characteristics like aptitude ad-it investigations [

monitoring their performance. Generation of the hole in the photonic crystal is through striking capillaries together, drilling or extrusion processes. The two designs of photonic crystal fiber contain air holes in the range of ten to hundred but differ in physical properties. The solid core type of photonic crystal fiber is quite similar to the conventional fiber that relies on the total internal reflection to guide light rays through low index cladding and high index core.

The solid core photonic fiber relies on the doped core or clouded glass to attaining their functional

fundamental features of the device often bypass the need for ultrafast laser training requiring system realignment. The technological approach offers a unified platform and optical sources that created current microstructures that operate contrary to the standard procedures of histopathology [5].

## Operation

The operation of Programmable Supercontinuum Pulses concept adopted new photonic variables in place of discrete optical alignment configuration applicable in gathering localized label-free images produced by endogenous contrast from the one- and two-photon autofluorescence,

that are cost efficient and faster regarding data processing for the selected specimen. The adaptability of the process to other techniques improves the performance of the systems in support of cellular and molecular examination of fresh tissue and selected biological samples tested for analyzing performance and status of the cells [4]. The use of Programmable Supercontinuum Pulses techniques in multiphoton microscopy system improves the performance of the scheme in comparison to the conventional histology [1]. The technology has eliminated the paradigm of time-consuming processes and accommodates lesser alignment to generate explicit images of tissues taken for analysis [6]. Visualization of the biological activities taking place in the system, quantification will subject the middle class to operate efficiently. The concept may classify the biological group of the body cells and that of the pathogens.

The technology provides the multiple issues relating to procedure analyses cellular metabolism and other related cases linked to ill health. Regardless of the cost incurred, the use of the programmable supercontinuum pulse technique accelerates the possible performance of the system. The technology performs poorly about evaluating the existence of pathogens in the bone marrows though with the assistance of surgeon specimen may originate from another section of the body that link the potential infection from one location to the next [8].

## Conclusion

The sophistication of technology and need to reduce cost and time in hospitalization require the adoption of robust processes in data mining, the formative use of machine learning to provide reliable data at the least time possible. The existence of big data provides significant data that

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