

# Primary Cells

Biologically Relevant Tools for Research

## What Are They?

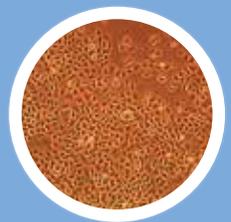
Non-transformed, non immortalized cells directly from the tissue



Organ



Tissue



Primary Cells

## Why Use Them?

- Demonstrates tissue characteristics similar to *in vivo* conditions
- Emphasis from research community to use better cell culture tools
- Reduces animal testing costs if used for initial screens to refine experiments
- Limited lifespan maintains tissue-like characteristics versus cell lines that are passaged longer
- Valuable tool as qualified normal controls for primary diseased cell studies

## Concerns with use of Cell lines



Authentication of cultured cell lines is critical for grant applications<sup>1</sup>

18-36% of cell lines are misidentified or cross-contaminated<sup>3</sup>

In a study of over 500 leukemia-lymphoma cell lines, 15% of the cell lines were misidentified<sup>2</sup>

primary cultures of malignant prostatic cells and their normal epithelial counterparts are sought<sup>5</sup>

Nature News: Some argue tumor cells obtained directly from patients are the best way to study cancer<sup>4</sup>

## Primary Cells

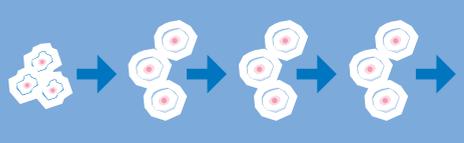
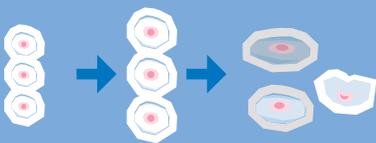
vs.

## Immortalized Cell Lines

Limited lifespan retains cell identity

1

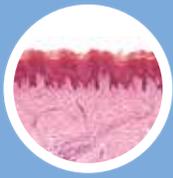
Infinite Lifespan, loses cell specificity



From the tissue

2

From a vial with high mutations and clonal selections



Pre-characterized and ready to use

Authentication required before use



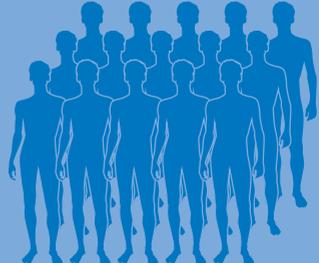
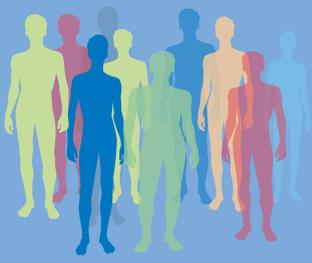
3



Study cells with varied donor characteristics

4

Study single donor repeatedly



## Your tools to get started on primary cell culture

- Lonza's Primary Cells
- Lonza's BulletKit™ Medium
- Lonza's culturing protocols
- Lonza's scientific support team

1 Notice Number: NOT-0D-08-017 <grants.nih.gov/grants/guide/notice-files/NOT-0D-08-017.html>  
 2 Drexler HG: Guide to Leukemia-Lymphoma Cell Lines, 2nd Edition. Braunschweig, 2010, pages 883-892  
 3 Hughes P et al. The costs of using unauthenticated, over-passaged cell lines: how much more data do we need? *BioTechniques* 43:575-586 (November 2007)  
 4 Brendan Borrell. *Nature News*: How accurate are cancer cell lines?. Vol 463.18 February 2010.  
 5 D M Peehl. Review: Primary cell cultures as models of prostate cancer development. *Endocr Relat Cancer*. 2005 Mar;12(1):19-47