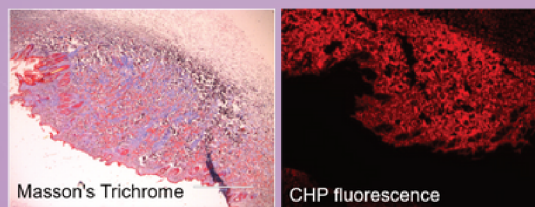


What are CHPs?

CHPs are unique collagen-targeting peptides that only bind to denatured collagen. Species and collagen sub-type do not matter, nor does the mechanism of collagen damage; heat, enzymatic cleavage, mechanical force, or chemical processes. This is due to CHPs unique ability to recognize the individual alpha strand Polyproline Type II helix.

3Helix's Collagen Hybridizing Peptide is a synthetic peptide that can specifically bind to denatured collagen through hydrogen bonding. The CHP staining agent enables **accurate and reliable molecular-level measurement of collagen contents** in histology samples with ease to quantify the results through automated image analysis.



Unlike traditional collagen stains (e.g., Masson's Trichrome), whose results are not easy to quantify and assess, the fluorescence signals from CHP stains can be easily quantified, using basic image analysis tools such as Image-J or FIJI.

Use in Histology

- Superb affinity and signal intensity that is visible to the naked eye
- Unparalleled specificity to damaged collagen with essentially no nonspecific binding to other proteins
- Applicable to all types of collagen from all species, relying on collagen's secondary structure instead of any defined sequence or epitope for binding
- A non-antibody approach with no species restrictions
- Small size (2% of IgG by MW) enabling facile tissue penetration and whole specimen staining without sectioning

CHPs compared to common collagen stains

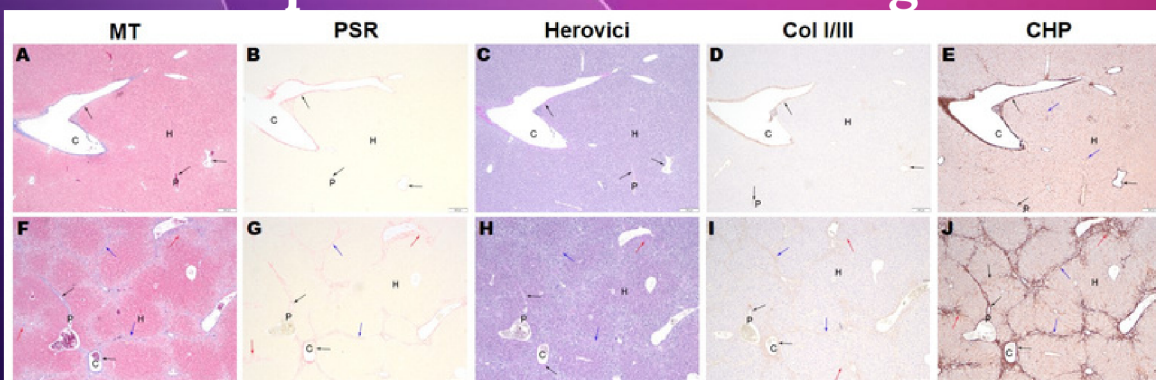
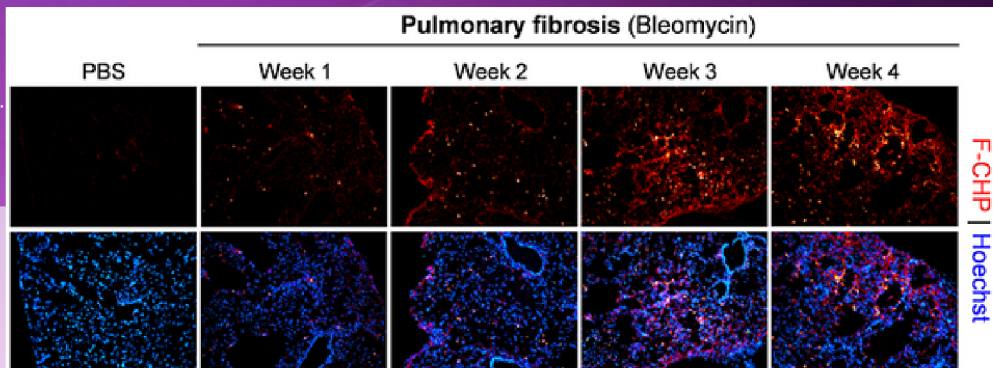
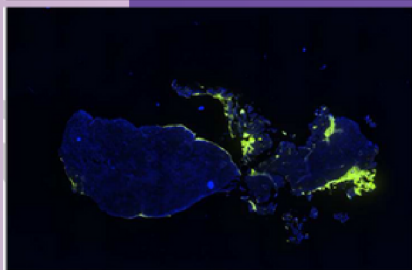
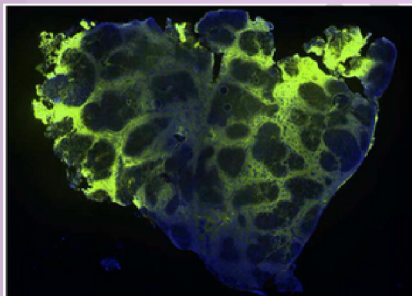


Figure 1. Representative photomicrographs of mouse livers. This figure shows serial sections taken from a healthy (control) mouse liver on the top (A-E) and the bottom row shows a fibrotic mouse liver 8 weeks after injection with CCl_4 (F-J). Collagen, identified by arrows in all photos, is stained blue in MT, pink/red in PSR, pink/read for mature collagen and blue for young collagen in Herovici's, dark to light brown for Col I/III cocktail, and dark brown in CHP staining. C-central vein, H-hepatocytes, P-portal triads, Arrows-collagen staining. Magnification was 40X, scale bar = 200 μm .

CHPs visualize Fibrosis

Pulmonary fibrosis. Representative fluorescence micrographs of the subpleural areas of lung cryosections obtained from mice dosed with bleomycin through minipumps for varying time periods versus control mice dosed with PBS for 1 week, and stained with F-CHP and Hoechst 33342. Highly localized, bright F-CHP signals revealed spotty distribution of damaged collagen appearing as early as one week after bleomycin treatment.

The overall CHP signals increased as the disease progressed from week 1 to week 3 and persisted through week 4.



- CHPs can detect damaged/denatured collagen with high specificity
- CHPs can detect all collagen subtypes regardless of mechanism of damage (thermal, mechanical, enzymatic, etc.)
- CHPs have been successful in staining fibrotic conditions in different tissue types (Kidney, Lung, Liver)
- CHPs are the only probe that give information about the collagen damage, but can still show total collagen like other stains (MT, PSR, etc.)

Histology Products	SKU	Size
F-CHP Collagen Hybridizing Peptide, 5-FAM Conjugate	FLU60, FLU300	60µg, 300µg
B-CHP Collagen Hybridizing Peptide, Biotin Conjugate	BIO60, BIO300	60µg, 300µg
R-CHP Collagen Hybridizing Peptide, Cy3 Conjugate	RED60, RED300	60µg, 300µg
Auto- CHP CHPs Optimized for Auto-Stainers**		**Contact Us for More Information

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