Supplementary table 1. Sequence of epitope detection in multiplex immunofluorescence staining.

| Cell types to be detected | Target (Antibody clone)      | Secondary antibody enzyme-conjugate | Opal fluorochrome |
|---------------------------|------------------------------|-------------------------------------|------------------|
| Melanocytes               | Melan-A (A103)               | Poly-HP Ms + Rb                     | Opal 620         |
| Keratinocytes             | pan Cytokeratin (C11)        | Poly-HP Ms + Rb                     | Opal 570         |
| T cell subset             | CD8 (C8/144B)                | Poly-HP Ms + Rb                     | Opal 520         |
| Mast cells                | Mast cell tryptase (AA1)     | Poly-HP Ms + Rb                     | Opal 690         |
| Leukocytes                | CD45 (2B11+PD7/26)           | Poly-HP Ms + Rb                     | Opal 480         |
| T cells                   | CD3 (polyclonal)             | Poly-HP Ms + Rb                     | Opal 780         |
| Nuclear cells             | DAPI                         |                                     |                  |

Abbreviations: Ms, mouse; Rb, rabbit; HRP, horseradish peroxidase.
Supplementary figure 1. Repetitive high-temperature heating leads to tissue damage, while tissues maintain their morphology after multiple rounds of treatment with stripping buffer. (A-C) On top is shown, hematoxylin and eosin staining of human kidney (A), melanoma (B), and colon (C) tissue prior to heat-induced epitope retrieval (HIER). At the bottom is shown, treatment of kidney (A), melanoma (B), and colon (C) tissue after 1 treatment (left) and 5 subsequent treatments (right) with either HIER in citrate buffer, HIER in Tris-EDTA buffer, or β-mercaptoethanol-containing stripping buffer. (D) Hematoxylin and eosin staining of gallbladder, ileum, pancreas, thymus and intestine tissue after 1 treatment (top), followed by 5 subsequent treatments with HIER in Tris-EDTA buffer (middle) or β-mercaptoethanol-containing stripping buffer (bottom). Bars equal 1 mm.
