**Summary of Molecular Tracer and Related Classes**

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1. **‘molecular tracer role’ (to replace ‘label role’)**
   * **Definition :** “a reagent role inhering in a molecular entity intended to associate with some molecular target to serve as a proxy for the presence, abundance, or location of this target in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms**:
     + inheres\_in some ‘molecular entity’
     + is\_realized\_by some ‘detection of molecular tracer assay’
2. **'molecular tracer'**
   * **Definition :** “a molecular entity intended to associate with some molecular target to serve as a proxy for the presence, abundance, or location of this target in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms**:
     + ‘molecular entity’ and has\_role some ‘molecular tracer role’
   * **Related classes requiring update:**
     + ‘label role’ and its children
       - ‘label role’ subclasses such as ‘radiolabel role’, ‘dye role’ will be obsoleted, as radiolabels and dyes are defined by physical qualities they bear, and not a more specific type of role. For example, a ‘radiolabel’ class can be defined as any molecular entity bearing a ‘tracer role’ and bearing a ‘radioactive’ quality.

1. **'molecular tracer-labeled material'** 
   * **Definition:** “a material entity that is the specified output of an addition of molecular tracer process, which aims to label some molecular target to allow for its detection in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms:**
     + material entity and (is\_specified\_output\_of some ‘addition of molecular tracer’)

* + **Related classes requiring update:**

- labeled specimen and its children

- labeled oligonucleotide

1. **'detection of molecular tracer assay' (to replace ‘detection of label’)**
   * **Definition :** “an assay that detects the presence or a quality of a molecular tracer which is a proxy for the detection of the molecular target to which the tracer is attached”
   * **Equivalent Class Axioms**:
     + Option 1: assay and (realizes some ‘molecular tracer role’)
   * **Superclass Axioms:**
     + assay and (has\_specified\_input some ‘molecular tracer-labeled material’) and (has\_specified\_output some (‘measurement datum’ and (is\_about some 'molecular tracer- labeled material’))
     + achieves\_planned\_objective some 'assay objective'

1. **'addition of molecular tracer' (to replace ‘labeling’)**
   * **Definition:** “a material processing technique intended to add a molecular tracer to some input material entity, to allow detection of the molecular target of this tracer in a detection of molecular tracer assay.
   * **Superclass Axioms**:
     + material processing
     + has\_specified\_input some ‘target of material addition’
     + has\_specified\_input some ‘molecular tracer’
     + has\_specified\_output some 'molecular tracer-labeled material'
   * **Related classes requiring update:**
     + specific labeling, non-specific labeling, random-primed DNA labeling