

PREDICTION OF CANCER CELL-OF-ORIGIN

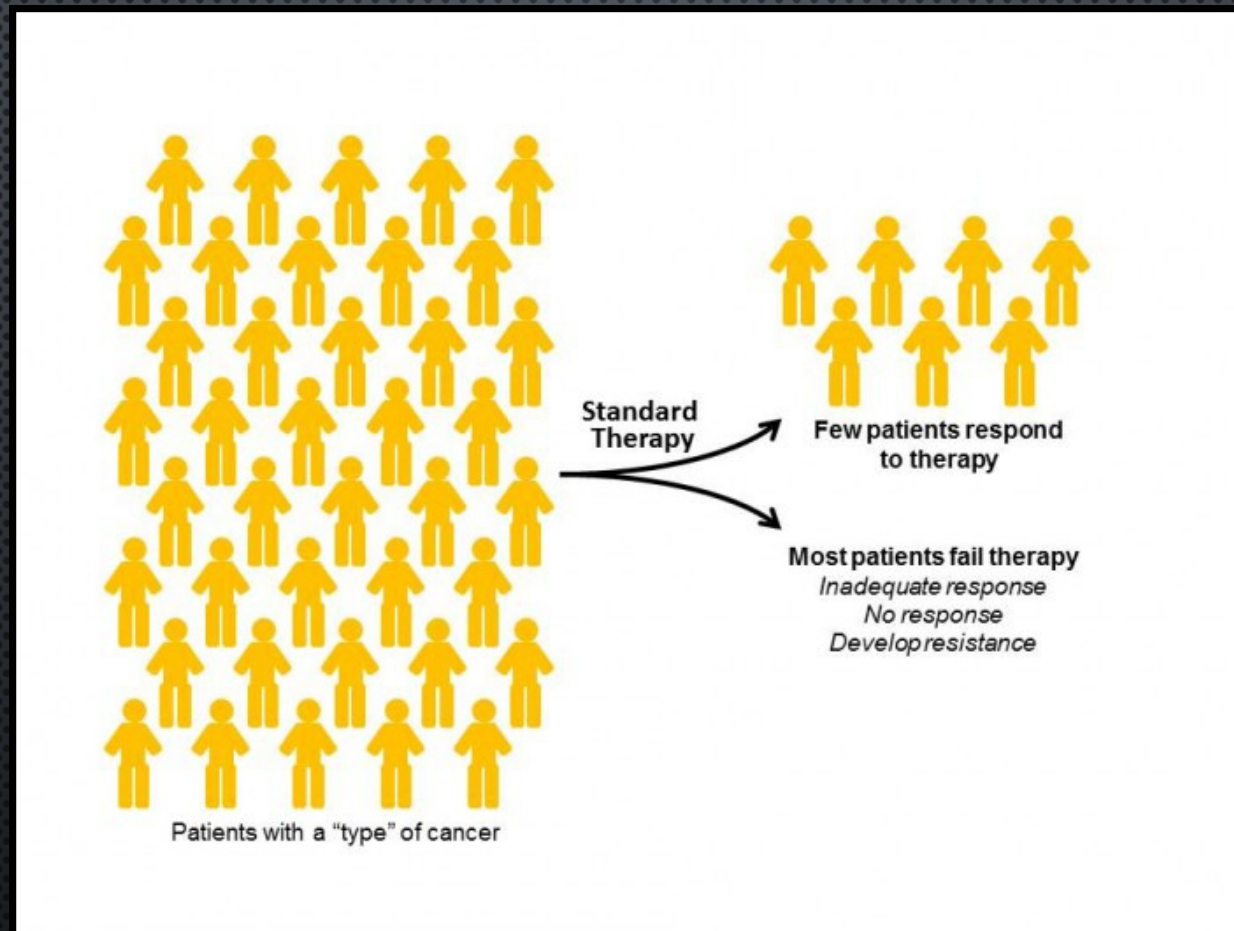
ROSA KARLIĆ

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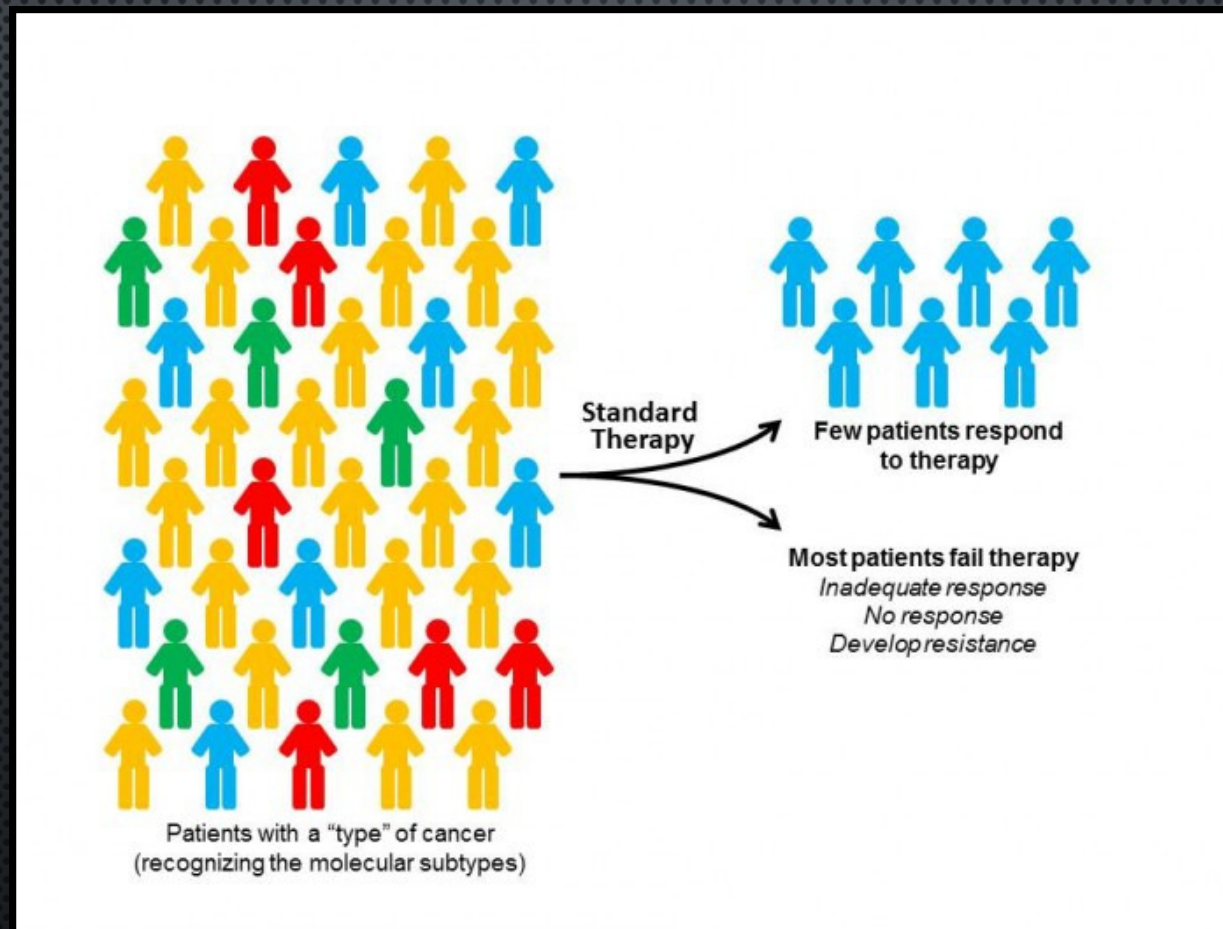
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OBRAD CONFERENCE

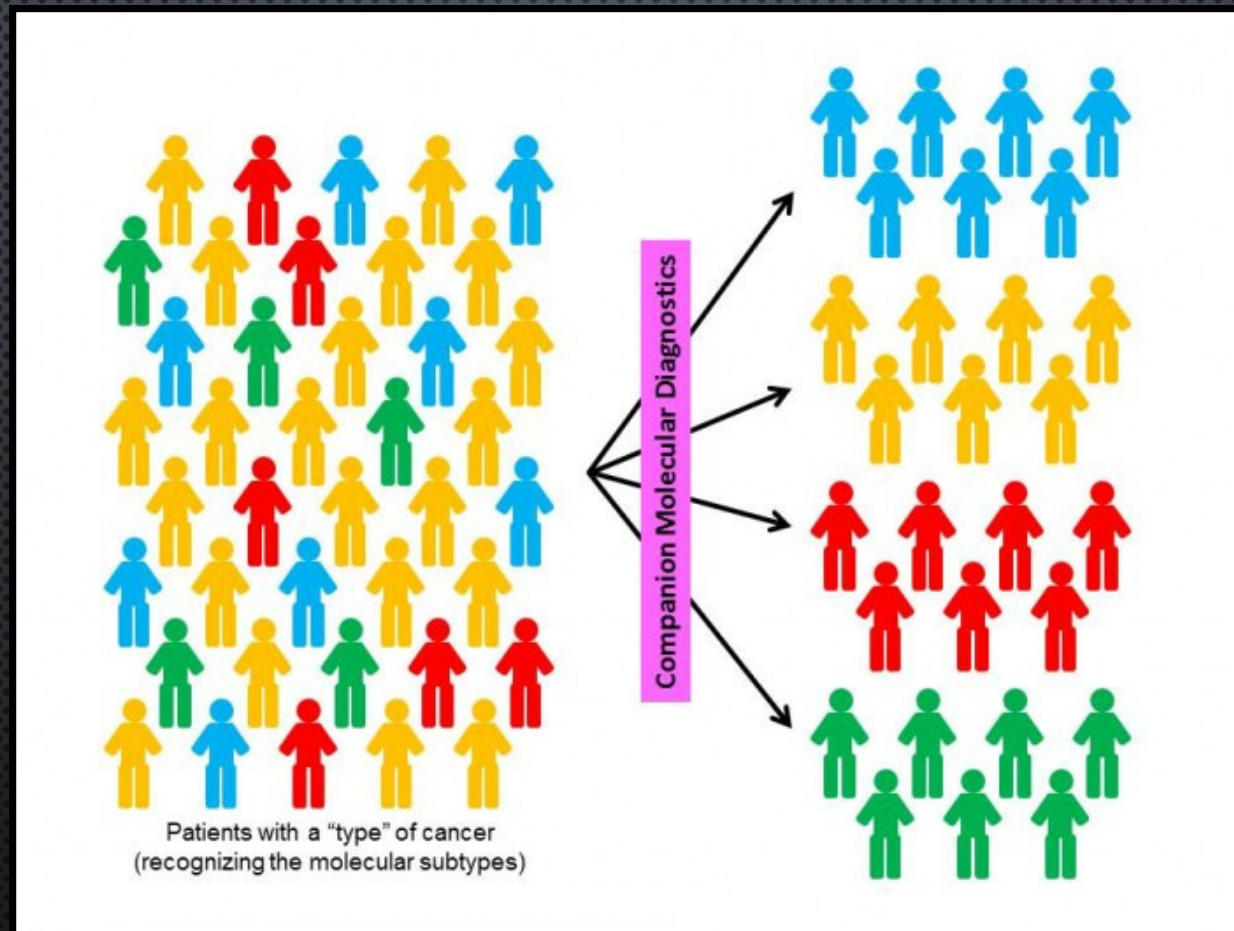
02.06.2016.



Coleman, W. B. Personalized Cancer Medicine – When Will the Time be Now? *SciTech Connect Elsevier* (2014). at <<http://scitechconnect.elsevier.com/personalized-cancer-medicine-will-time-now/>>



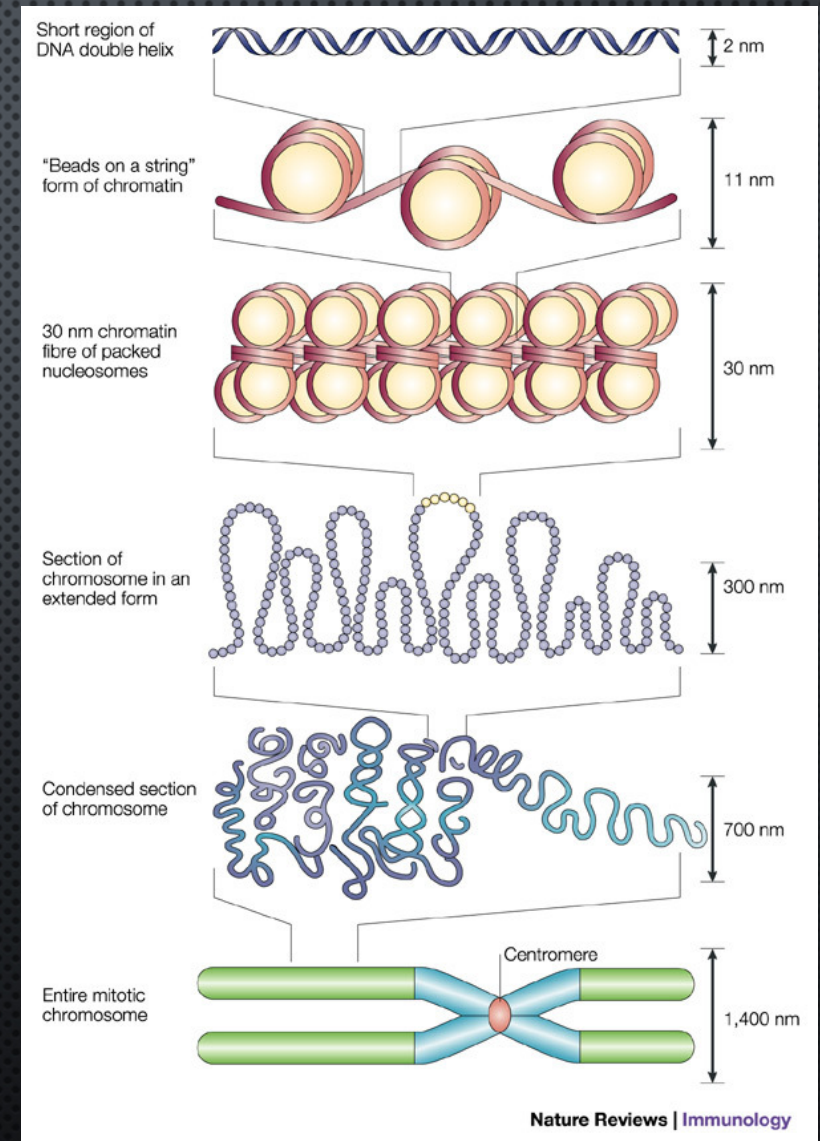
Coleman, W. B. Personalized Cancer Medicine – When Will the Time be Now? *SciTech Connect Elsevier* (2014). at <<http://scitechconnect.elsevier.com/personalized-cancer-medicine-will-time-now/>>

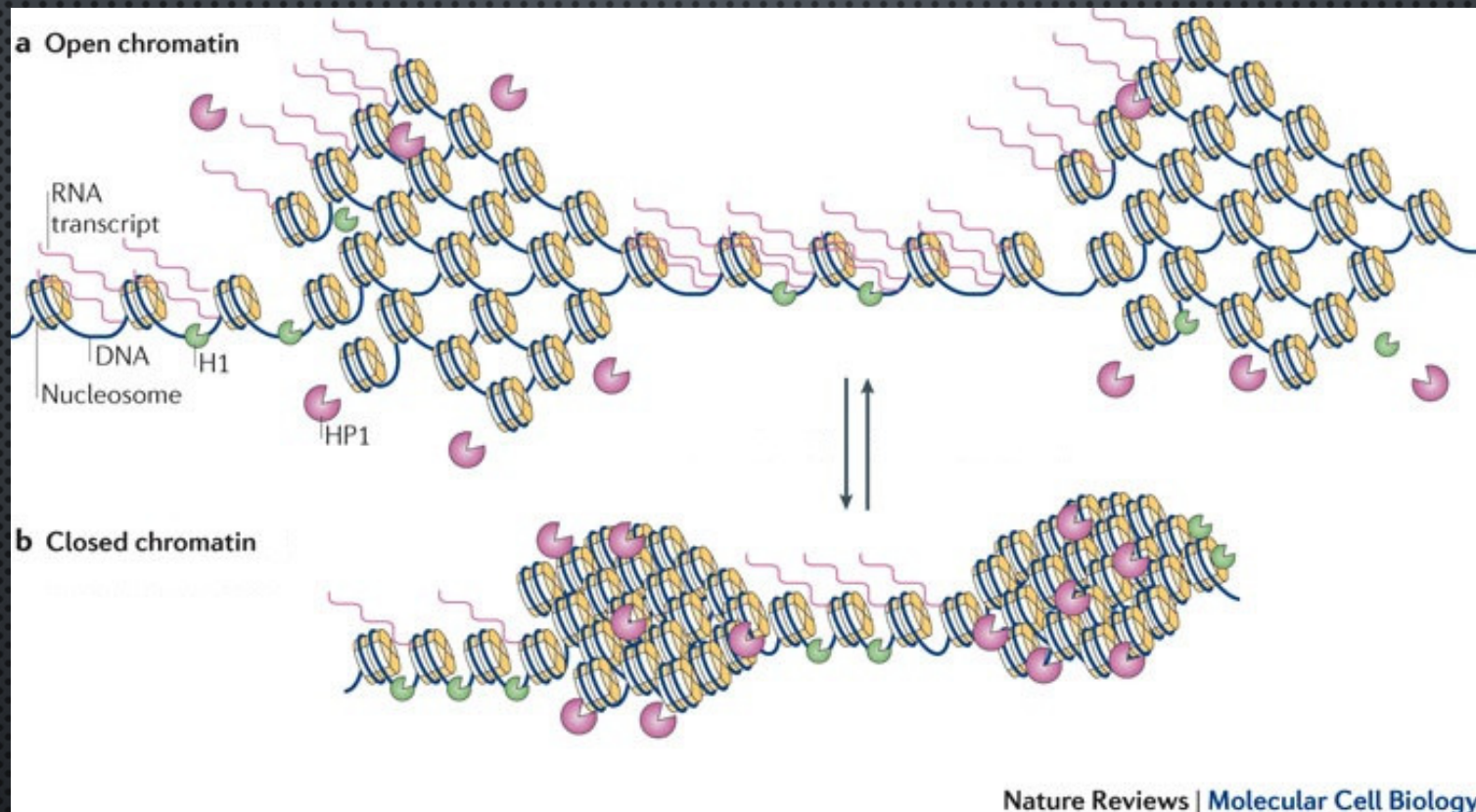


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HOW DO WE RECOGNIZE DIFFERENT (SUB)TYPES OF CANCER?

- USING EPIGENETIC (CHROMATIN) FEATURES
- COMPARING EPIGENETIC FEATURES TO THE DISTRIBUTION OF MUTATIONS



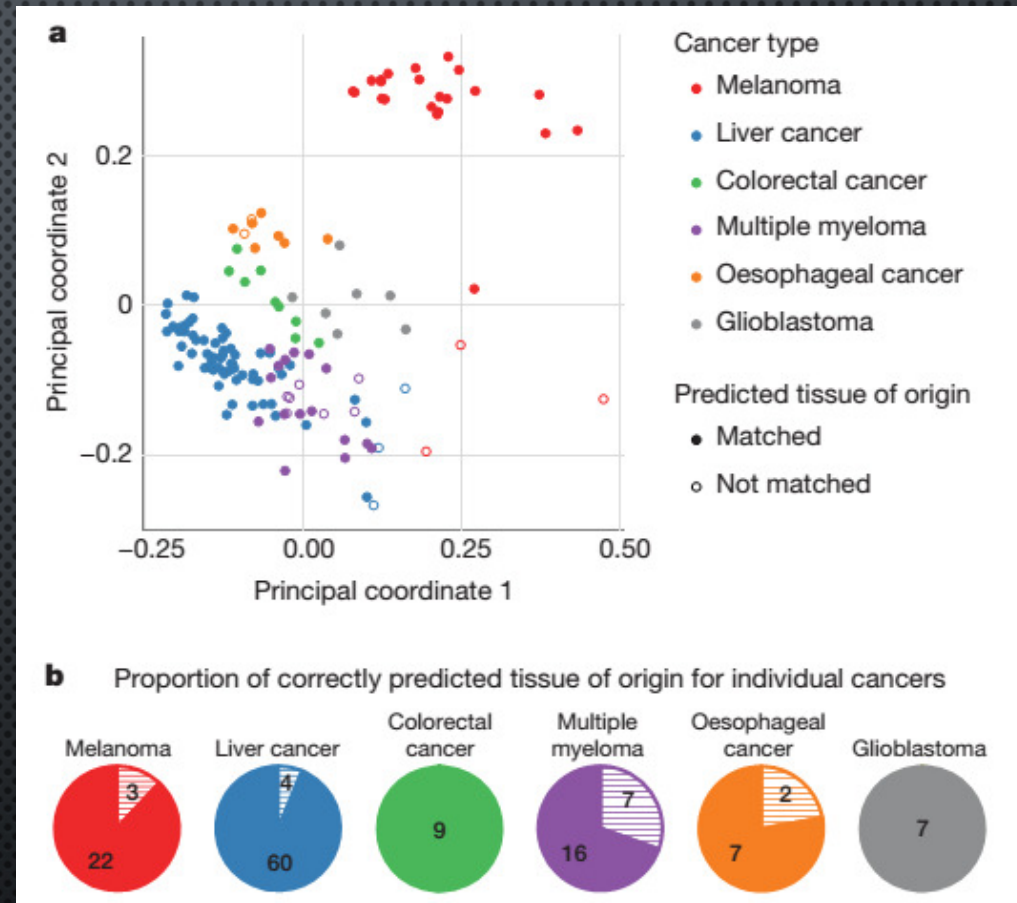


Nature Reviews | [Molecular Cell Biology](#)

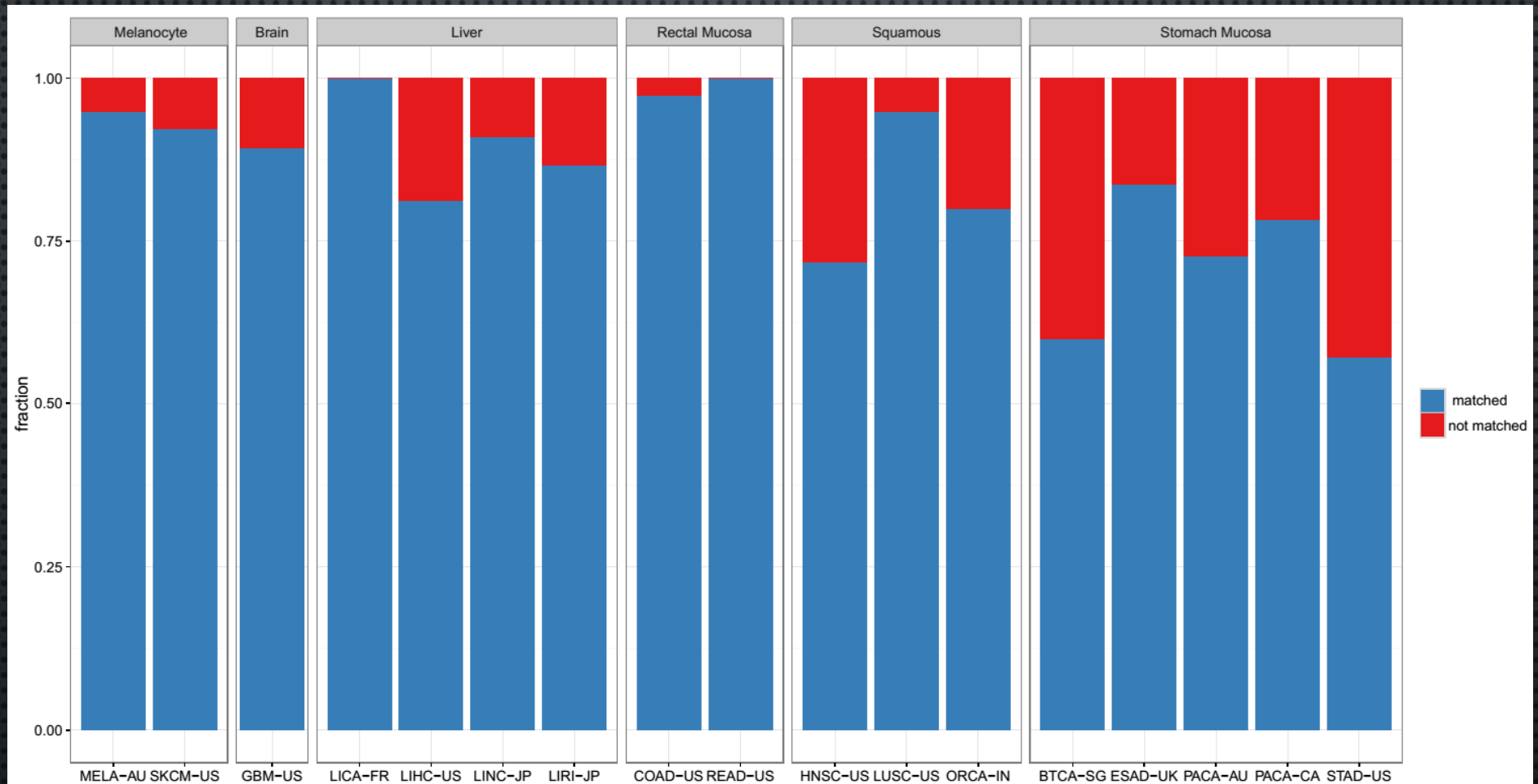
Adapted from Gaspar-Maia et al., 2011, Nature Reviews Molecular Cell Biology

- EFFICIENCY OF DNA REPAIR IS DIFFERENT IN OPEN AND CLOSED CHROMATIN
- LOCATIONS OF OPEN AND CLOSED CHROMATIN ARE DIFFERENT IN DIFFERENT CELL TYPES

- CORRECT TISSUE OF ORIGIN IS PREDICTED IN 88% OF CASES USING MACHINE LEARNING METHODS
- 5-10% OF CANCERS ARE CUP (CANCER OF UNKNOWN PRIMARY)
- COULD BE IMPORTANT FOR THE ACCURATE DIAGNOSIS AND TREATMENT OF MALIGNANT DISEASES



Polak, Karlić et al., 2015, *Nature*



- ANALYSIS NOW EXPANDED TO 2800 INDIVIDUAL CANCER GENOMES

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Epigenetika i genomika tumora

