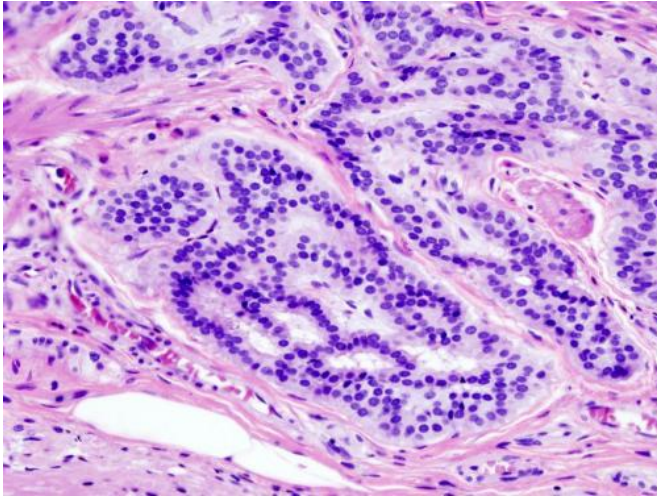


Strange colon discovery explains racial disparities in colorectal cancer

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Cancer — Histopathologic image of colonic carcinoid.
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The colons of African-Americans and people of European descent age differently, new research reveals, helping explain racial disparities in colorectal cancer—the cancer that killed beloved "Black Panther" star Chadwick Boseman at only 43.

Scientists led by UVA Health's Li Li, MD, Ph.D.; Graham Casey, Ph.D.; and Matt Devall, Ph.D., of the Center for Public Health Genomics, found that one side of the colon ages biologically faster than the other in both African-Americans and people of European descent. In African-Americans, however, the right side ages significantly faster, explaining why African-Americans are more likely to develop cancerous lesions on the right side and why they are more likely to suffer [colorectal cancer](#) at a younger age, the researchers say.

"Our discovery provides novel insight of the mechanistic underpinning for the observed racial disparities in age-of-onset and anatomical

distribution of colon neoplasia," said Li, the leader of the Cancer Control and Population Health program at UVA Cancer Center. "Side-specific biological aging of the colon might emerge as a novel biomarker to guide the development of personalized prevention and intervention strategies."

Colons Old Beyond Their Years

African-Americans are disproportionately affected by colorectal cancer. The American Cancer Society reports that African-Americans are 20% more likely to develop colorectal cancer and 40% more likely to die from it. Overall colorectal cancer rates have declined in America in recent years, but African-Americans have not seen the same decreases as people of European descent. And even as the overall rates have dropped, the rate among [younger people](#) has gone up.

While doctors have long appreciated these disparities, they haven't really understood the causes. The new study helps answer those questions. It's the first to show that the right and left side of the colon actually age differently.

The researchers made this determination by looking at the DNA in colon tissue, and the 'epigenetic' changes that come with age. These [epigenetic changes](#) are not alterations to the genes but changes that affect how the genes work and how well they can do their jobs.

The scientists found that the right side of the colon in most African-Americans had suffered a unique pattern of "hypermethylation," affecting gene expression. It was, in essence, like the right side was old beyond its years. This, the researchers believe, could contribute to African-Americans' increased cancer risk and could explain why they are more likely to develop cancerous lesions on the right side.

The research could also explain why younger people of European descent are more likely to develop lesions on the left side—the side that tends to age faster in that group.

"These findings highlight the importance of colon sidedness to biology of colorectal cancer," Casey said. "The fact that the [colon](#) biology of people of African and European ancestry differ further highlights the critical importance of more research involving participation of people of African descent."

Li and his team say further investigation of what they have found could lead to better ways to treat and prevent colorectal cancers.

"We are working to validate our discovery in independent patient cohorts," Li said. "Our discovery is a step forward in our effort to prevent colorectal [cancer](#) and reduce racial disparities in this deadly disease."

More information: Matthew Devall et al, Racial Disparities in Epigenetic Aging of the Right vs Left Colon, *JNCI: Journal of the National Cancer Institute* (2020). [DOI: 10.1093/jnci/djaa206](https://doi.org/10.1093/jnci/djaa206)

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