**Only corresponding reference papers**

Hello, can you please use the PDFs I gave you and exclude any external information. I want to write a sub-section in a paper titled 'The spectrum of sex differences in cancer'. Can you write a summary about the topic 'Role of sex chromosomes in immunity' under tentative section 'Anticancer Immunity' for such a paper. Please use the PDFs that I have provided and write paragraphs. This summary should focus on the role of sex chromosomes in immunity and immune-regulatory functions

Based on the provided information from the PDF【19†source】【23†source】【27†source】, the sub-section 'Role of Sex Chromosomes in Immunity' under the tentative section 'Anticancer Immunity' could be summarized as follows: --- Sex chromosomes play a critical role in the immune system and in modulating responses to cancer. Females have two X chromosomes, one from each parent, while males have one X and one Y chromosome. Dosage compensation between the sexes is usually achieved by the inactivation of one X chromosome in females, which gets packaged into transcriptionally inactive heterochromatin, known as a Barr body【19†source】. This inactive X chromosome can sometimes escape silencing, affecting gene expression and immune function. Skewed X chromosome inactivation (XCI) has also been observed, where defects lead to the progressive silencing of the defective chromosome, potentially offering a biological advantage but also leading to immunological consequences【23†source】. The distribution of active X chromosomes in females can introduce functional diversity in immune responses, as mosaicism can provide an advantage when there are deleterious mutations on X chromosome genes. Furthermore, some X-linked genes have homologs on the Y chromosome and can escape XCI, playing a role in differences observed in immune responses between men and women, and between individual women【19†source】【23†source】. Furthermore, X-linked microRNAs, which are more densely packed on the X chromosome when compared to autosomes, have been implicated in immunity, suggesting a potential contribution to gender-specific immune responses and possibly influencing the genetics of autoimmune diseases (AID) in adults. Various diseases such as Wiskott-Aldrich syndrome, X-linked neutropenia, and Chronic Granulomatous Disease exhibit major autoimmune features and are influenced by the expression patterns of genes on the X chromosome【27†source】. In conclusion, sex chromosomes and their associated epigenetic modulations, such as XCI escape, skewed XCI, and x-linked microRNAs, are key factors in understanding the divergent immune responses observed between males and females. This variance may contribute to differences in the development and treatment of AIDs, and potentially, to anticancer immunity. --- While this summary is based on select highlights within the range of topics covered by the documents, it integrates key information on how sex chromosomes and the genetics on them influence immunity, and thus, may impact cancer outcomes. It's important to note that microRNA and other genetic components may provide further insights into the interplay between sex differences and cancer immunity, warranting additional studies as stated by the authors【27†source】.

**All reference papers**

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Estrogen Preferentially Promotes the Differentiation of CD11c+ CD11b intermediate Dendritic Cells from Bone Marrow Precursors, discussing sex biases in autoimmune diseases and the effects of estrogen and non-steroidal antiestrogens on dendritic cells' production of various cytokines. From PDF 2: - The study on the Effect of Medical Castration on CD4+CD25+ T cells, CD8+ T cell IFN-γ expression, and NK cells discusses the physiological role of testosterone and/or its metabolites in immunity. This study shows how hormones can influence cell-mediated immunity in mouse models and human autoimmune diseases. From PDF 3: - Integration of interferon-α/β signalling to p53 responses in tumor suppression and antiviral defense examines the relationship between p53 protein, which is involved in tumor suppression, and the body's antiviral response.