Coexpression of CD44 and CD133 as cancer stem cells (CSC) markers in prostate cancer (PCa) tissue

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M. Puchinskaya
Minsk City Clinical Cancer Centre, Minsk, Belarus

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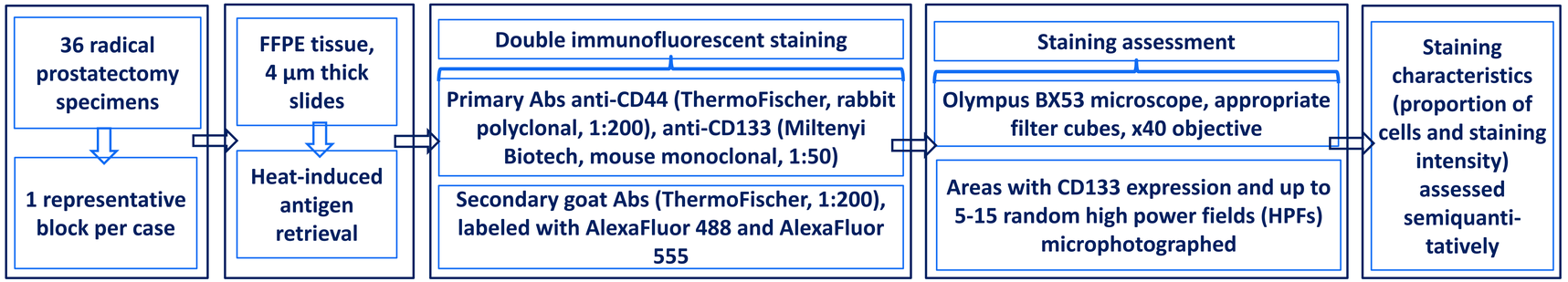
Background

CSC are thought to be a source of cancer regrowth and resistance after systemic treatment. CD44 and CD133 are often used as CSC markers in experimental works. Their coexpression on tumor cells aids in better enrichment of CSC with flow cytometry. However, data on their coexpression in tumor tissue obtained from patients are scarce.

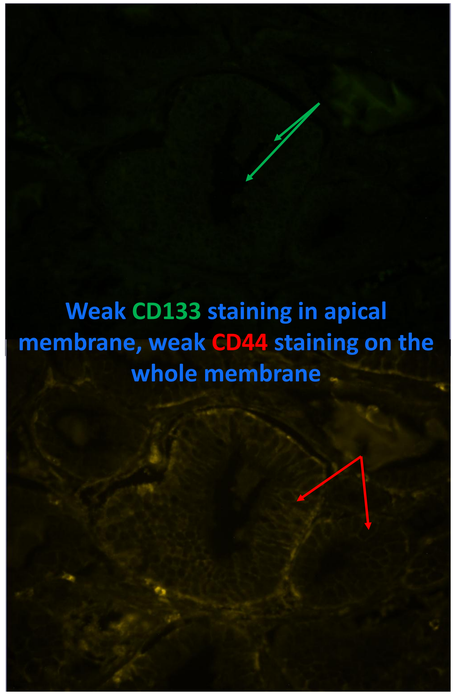
Aim

To describe the patterns and evaluate the expression of CD44 and CD133 as markers of CSC in human PCa tissues

Material and methods



Results



- CD133 expression was found in 26 (72.2%) cases and was seen mostly on luminal (very rarely – the whole) membrane
- In most cases single glands were stained and only in 16.7% of cases more than 5 glands were CD133-positive. Staining intensity was mostly weak
- CD44 expression was found on cancer cells membranes, as well as on basolateral membranes of cells in non-cancerous glands. Practically all cells per HPF were stained with the same intensity
- Staining intensity was assessed as weak, moderate or strong, the latter two being most prevalent (89.0% of HPFs)
- In those cells where CD133 expression was present, coexpression of both markers could be seen. In single cells (22.2% of cases) CD133 was expressed on the whole membrane, and in those cells direct coexpression of both markers was present
- No statistically significant differences were found between CD44 staining intensity and CD133 presence (at the level of cells in a gland, HPFs or cases) ($p_{Mann\text{-}Whitney}$>0,05) in the studied cohort

Conclusions

CD133 staining is very rare in clinical PCa samples, that corresponds to the idea of rarity of CSC population, unlike CD44, that was abundantly expressed. In single cells coexpression of both markers was present, dependent on the presence of CD133, and those cells may represent CSC subpopulation in PCa.

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Contacts: puchinskaya_m@mail.ru.
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