

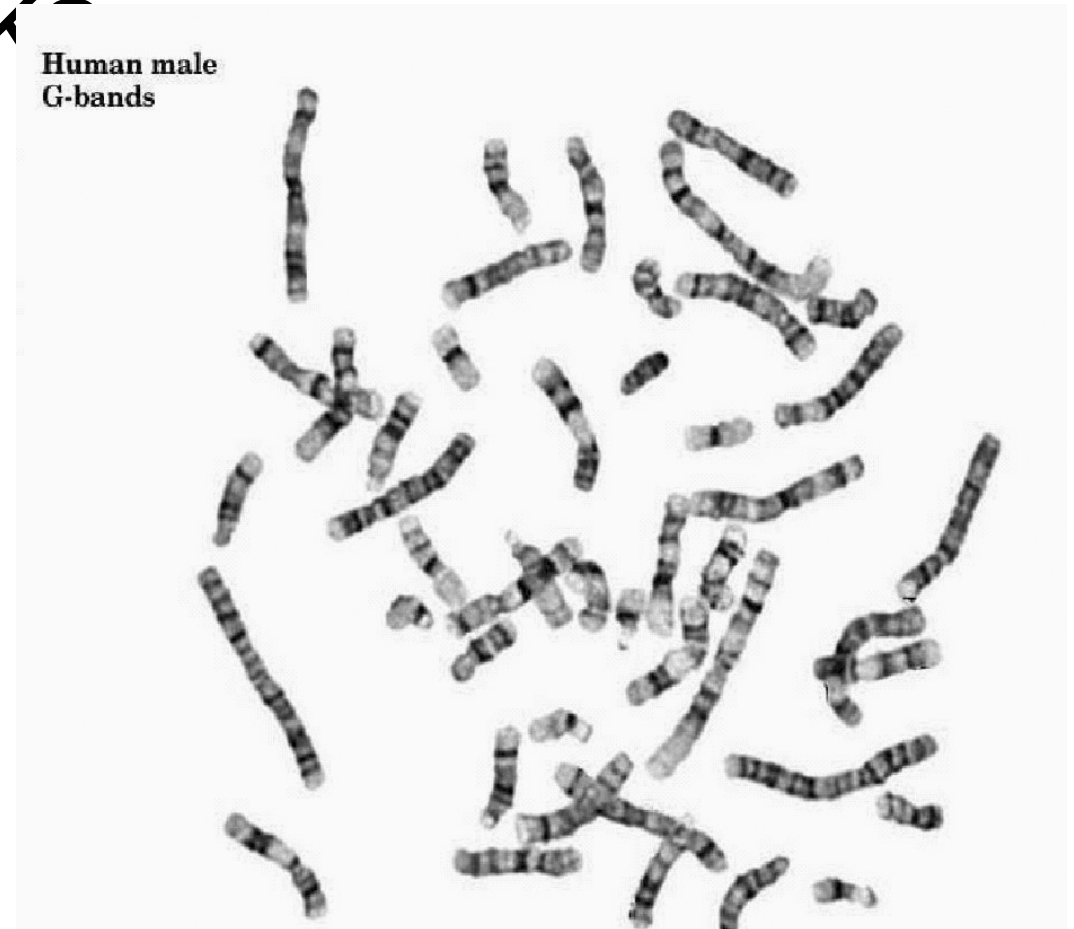


# Cytogenetika a průtoková cytometrie

Bc. Kateřina Kutálková

# Klasická cytogenetika

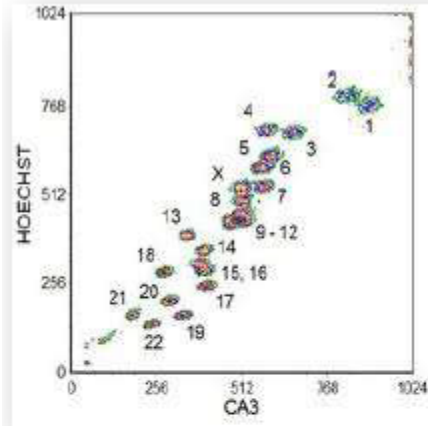
- Zatížena chybou, subjektivní
- Malý počet spočítaných buněk



(Jahani and Kamaledin Setarehdan, 2012)

# Příprava vzorku (živočišné buňky)

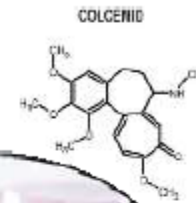
## 5. Evaluace



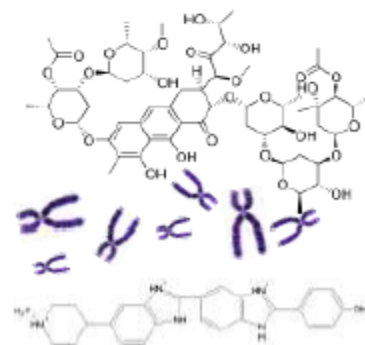
## 1. Kultivace



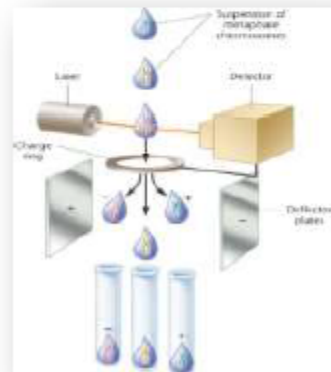
## 2. Synchronizace



## 4. Barvení



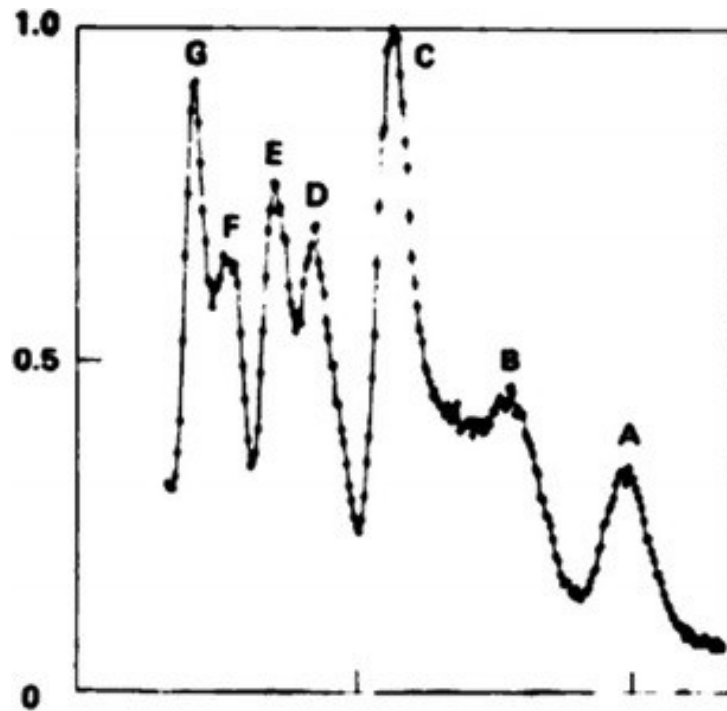
## 3. Izolace



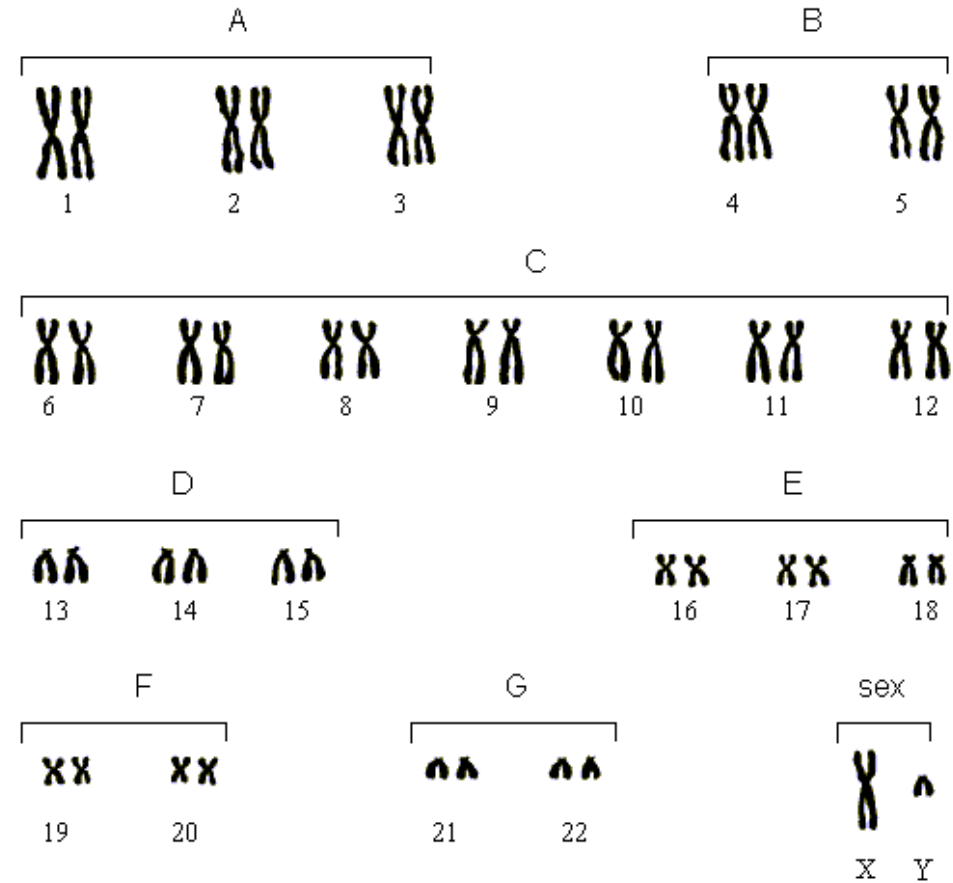
## 5. Akvizice a Sortování

# Barvení

- Etidium bromid



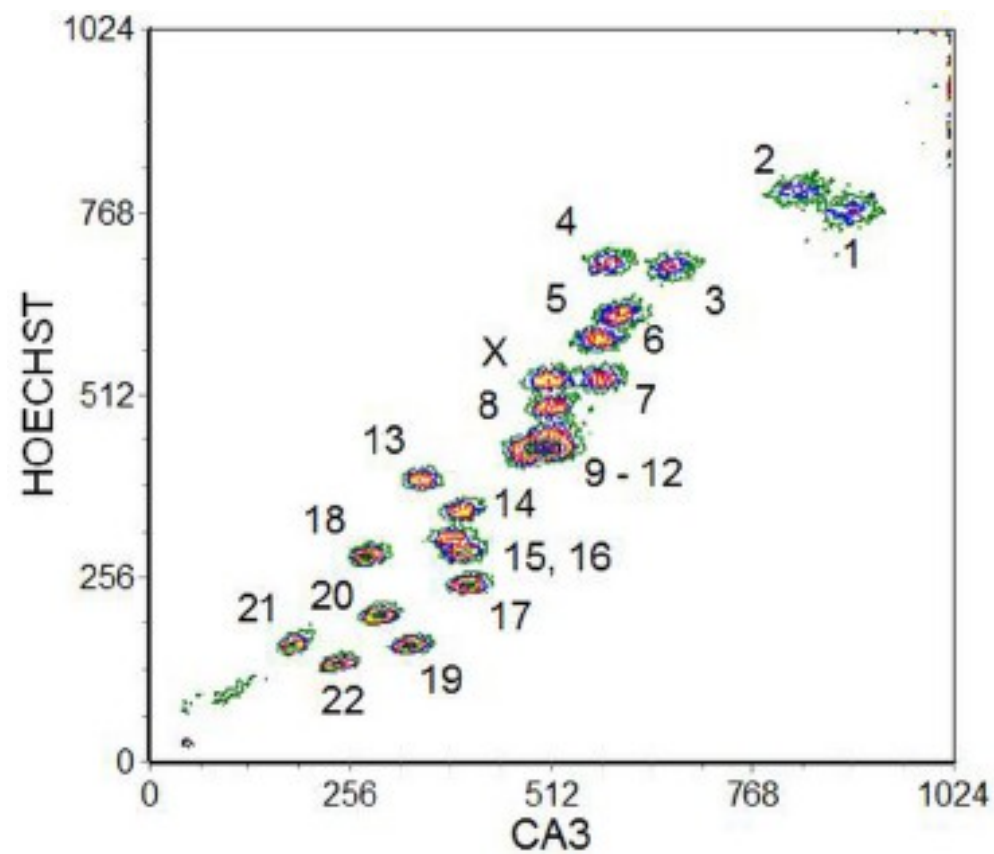
(Doležel *et al.*, 2012)



<http://www.web-books.com/MoBio/Free/images/Ch1C3.gif>

# Barvení

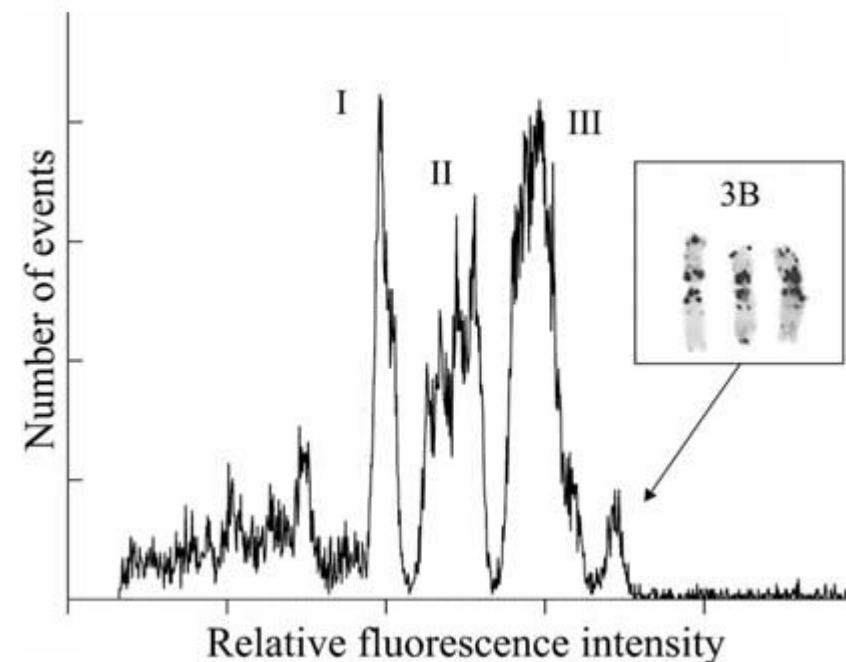
- Hoechst + Chromomycin



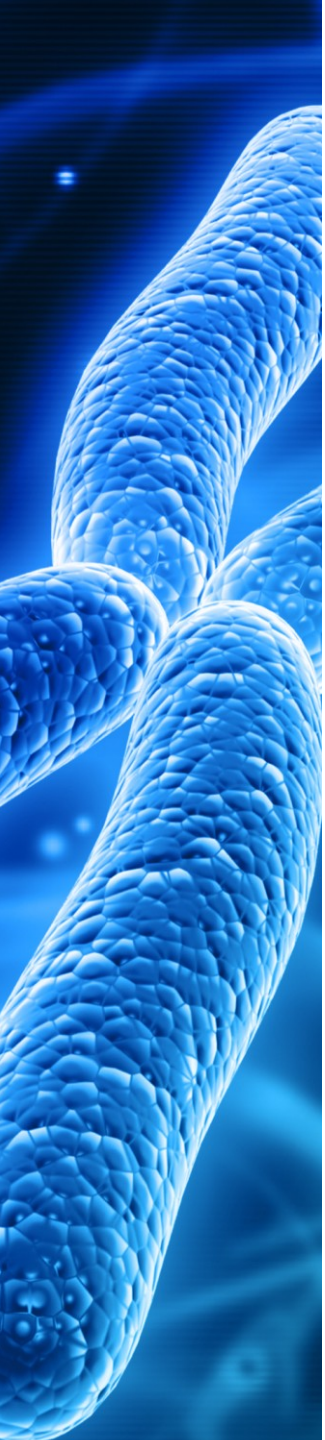
[http://flowbook.denovosoftware.com/@api/deki/files/123/=Chapter\\_10\\_Figure\\_05.png?size=webview](http://flowbook.denovosoftware.com/@api/deki/files/123/=Chapter_10_Figure_05.png?size=webview)

# Rostlinné chromosomy

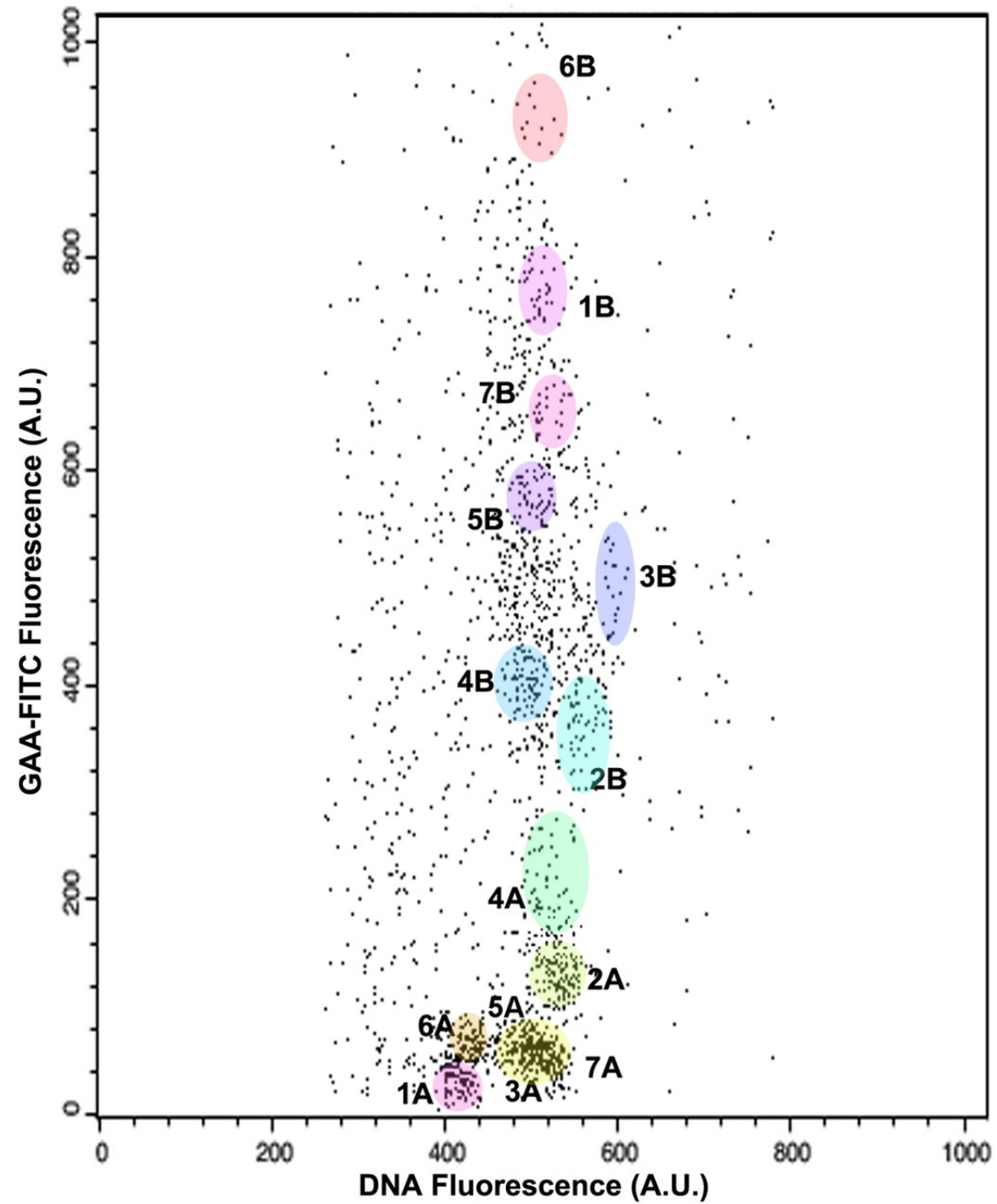
- Obtížná příprava neporušených chromozomů
- Polyploidie
- Stejný poměr A/T vs. G/C



(Doležel *et al.*, 2004; upraveno)



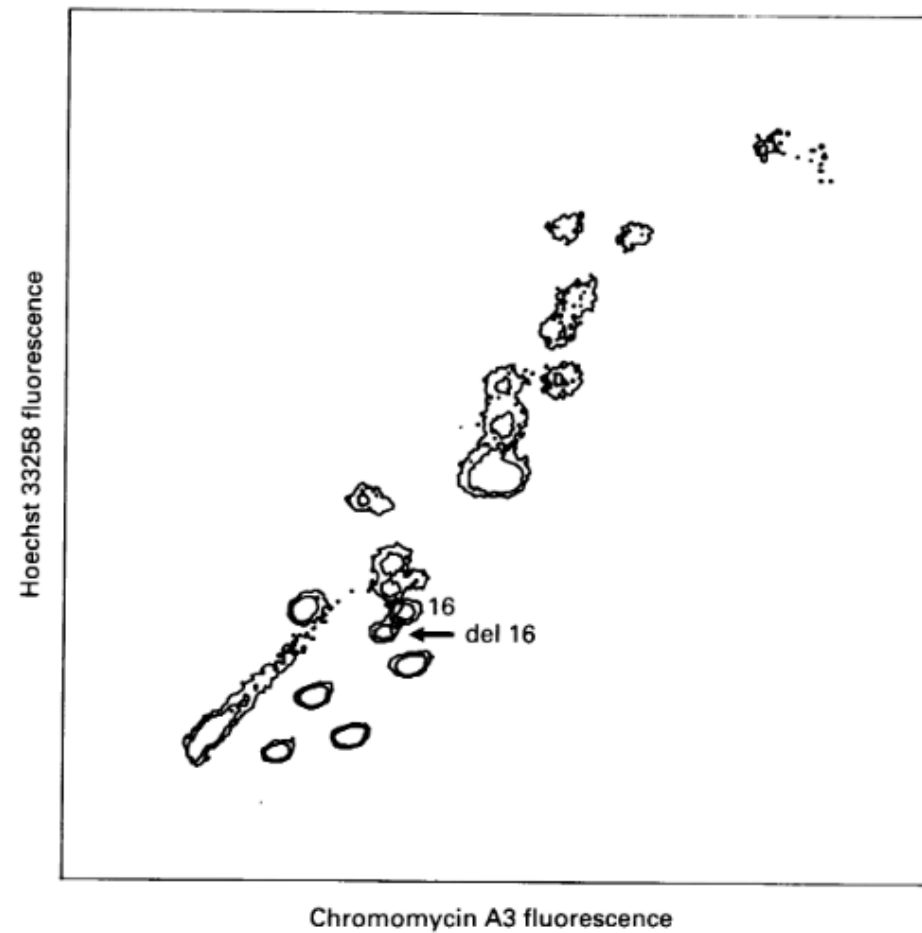
# FISHIS



(Giorgi *et al.*, 2013;  
upraveno)

# Využití I

- Rychlá tvorba karyotypu
- Detekce chromozomových abnormalit



(Carter *et al.*, 1992)





# Využití II

- Sortování
  - Chromozomově specifické DNA knihovny
  - Chromozomové malovací sondy
  - Sekvenování
  - Identifikace proteinů vázících se k DNA
  - Evoluční a fylogenetické studie



# Literatura

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- Doležel, J., Kubaláková, M., Bartoš, J., Macas, J., 2004. Flow cytogenetics and plant genome mapping. *Chromosome Res.* 12, 77–91.
- Giorgi, D., Farina, A., Grosso, V., Gennaro, A., Ceoloni, C., Lucretti, S., 2013. FISHIS: Fluorescence In Situ Hybridization in Suspension and Chromosome Flow Sorting Made Easy. *PLoS ONE* 8, e57994.
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Děkuji za pozornost

