


# About OMICS Group



OMICS Group International is an amalgamation of [Open Access publications](#) and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 400 online open access [scholarly journals](#) in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 300 [International conferences](#) annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.

# About OMICS Group Conferences



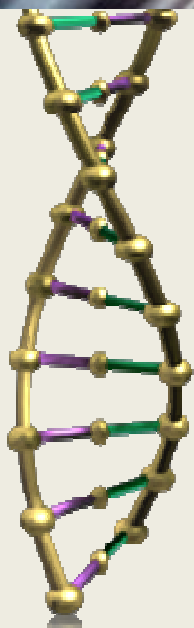
OMICS Group International is a pioneer and leading science event organizer, which publishes around 400 open access journals and conducts over 300 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.



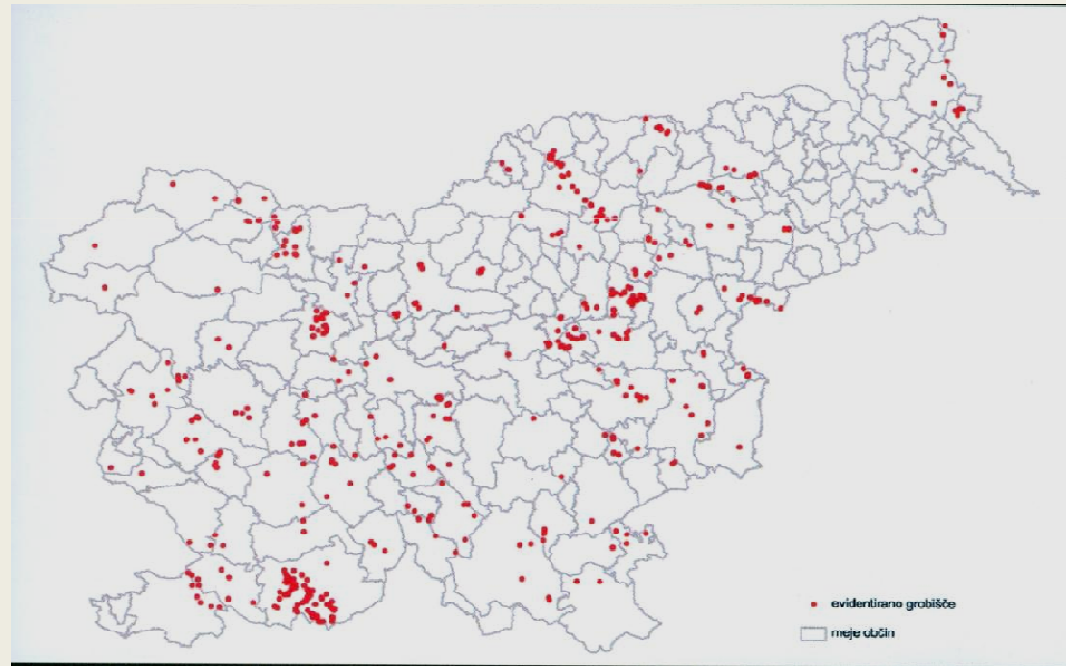
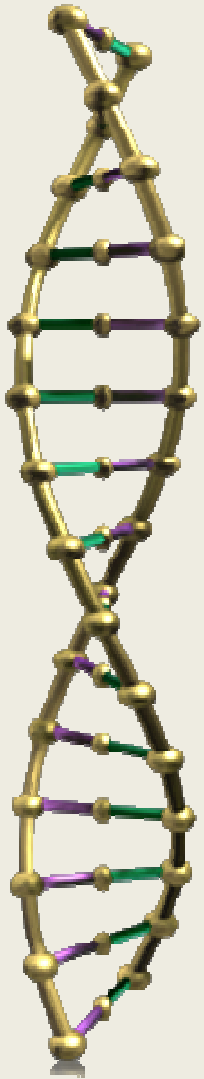
## DNA IDENTIFICATION OF ANCIENT SKELETAL REMAINS IN SLOVENIA

Assist.Prof. Dr. Irena Zupanič Pajnič  
Erdogan Oncun BSc (Hons) (Presenter)



# Mass graves in Slovenia

- In Slovenia we have about 600 hidden mass graves from WWII (approximately 100.000 victims)

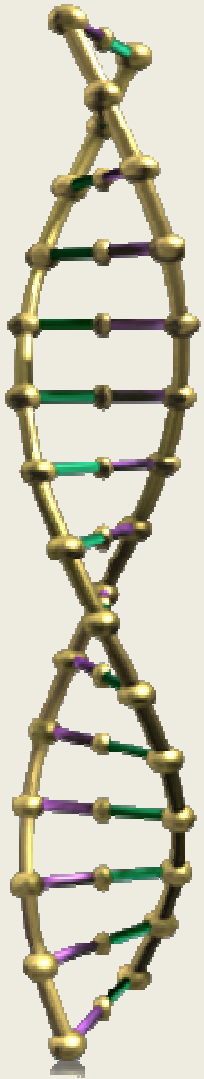


## The most common findings

- gunshot wounds on skulls
- victims were tied with wire
- mostly man victims
- military clothes (soldiers)



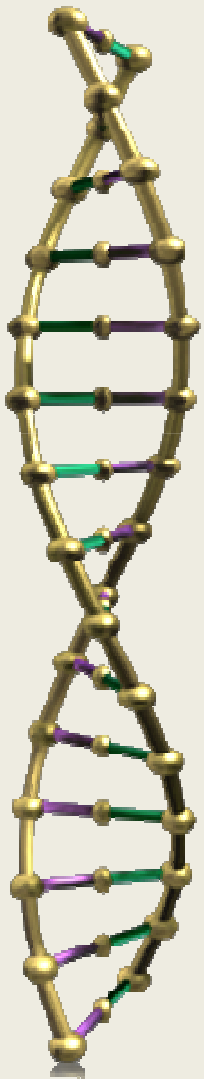
# Storage of skeletal remains

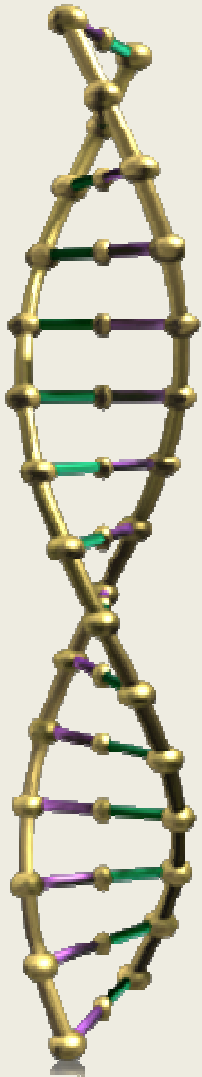


Skeletal remains should be stored in aerial boxes. Plastic bags are not suitable, because bones can't dry in them and the process of decay can start. Boxes with marked skeletal remains should be stored in dry places with low humidity to minimize the possibility for development of microorganisms.

# The most appropriate type of bones and teeth for genetic analyses

For molecular genetic identification of the skeletons excavated from the Slovenian WWII mass graves we are sampling one piece of femur and two complete molars per skeleton whenever possible





# Educational workshops

We would like to present the 5-day training courses “Processing and DNA typing of old skeletal remains” which take place since 2013 every month in the Laboratory of Molecular Genetics at the Institute of Forensic Medicine, Faculty of Medicine, University of Ljubljana, Slovenia – EU, announced on **ISFG - International Society of Forensic Genetics** homepage

**PROCESSING AND DNA TYPING OF OLD SKELETAL REMAINS  
COURSE 2014 IN LJUBLJANA, SLOVENIA, EU (5 DAYS)**

- 13-17 January 2014
- 3-7 February 2014
- 10-14 March 2014
- 7-11 April 2014
- 19-23 May 2014
- 9-13 June 2014
- 22-26 September 2014
- 13-17 October 2014
- 10-14 November 2014
- 8-12 December 2014

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• Sign in

### Announcements

**New Courses "Processing and DNA Typing of old Skeletal Remains 2014"**

After having organized very successful courses in 2013, the Laboratory for Molecular Genetics at the Institute of Forensic Medicine, Faculty of Medicine, University of Ljubljana, Slovenia, will organize new courses on "Processing and DNA Typing of old Skeletal Remains" in 2014.

The course using forensic human identification methods and commercially available human ID kits is suitable not only for participants who would like to process old skeletal remains but also those who would like to perform in their laboratories the identification of relatively fresh human remains where no other material than bones or teeth are left for molecular genetic analyses. The course will include experimental individual work with approximately 70 years old bones and will provide the participants first-hand knowledge of how to perform bone DNA typing.

The laboratory in Ljubljana was established in 1996 and has started with DNA typing of old skeletal remains in 2005. The molecular genetics laboratory set-up is based according to ISO/IEC 17025 guidelines, and laboratories are filled out with modern molecular genetic analyses equipment. The courses will take place at the following dates:

- 13 - 17 January 2014
- 3 - 7 February 2014
- 10 - 14 March 2014
- 7 - 11 April 2014
- 19 - 23 May 2014
- 9 - 13 June 2014
- 22 - 26 September 2014
- 13 - 17 October 2014
- 10 - 14 November 2014
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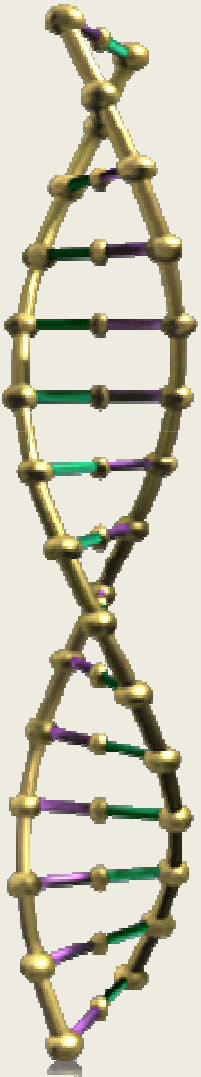
The number of participants is limited to three persons during a course. You find all further information about the course and the registration details in the following brochure: [file:///C:/Course\\_Ljubljana2014.pdf](#)

*Posted 6 months and 2 days ago by [Lucas M. Schneider](#). (Last modified 3 days and 23 hours ago)*

http://www.isfg.org/Announcements/216 19.9.2013

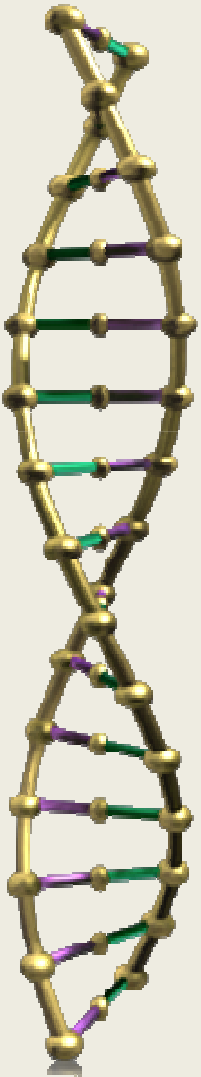


## Processing and DNA typing of old skeletal remains Course



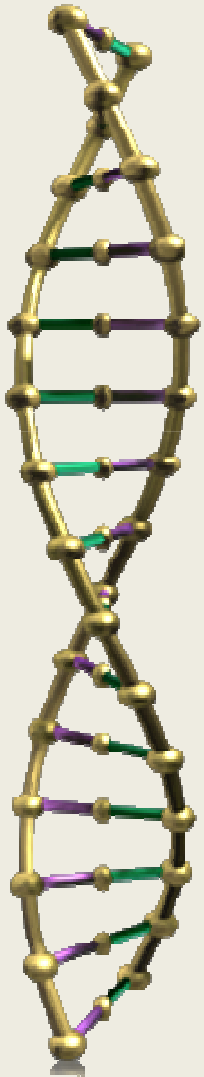
- The course is designed to deliver advanced level training to experienced laboratory based scientists that are familiar to DNA typing technologies.
- The unique training course is performed in the forensic molecular genetic laboratory equipped specially for processing old bones and teeth.
- The course using forensic human identification methods and commercially available human ID kits is suitable not only for participants who would like to process old skeletal remains but also those who would like to perform in their laboratories the identification of relatively fresh human remains where no other material than bones or teeth are left for molecular genetic analyses.

## Processing and DNA typing of old skeletal remains Course



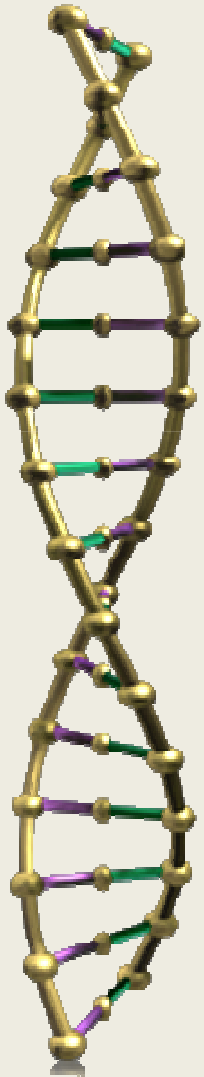
- The training course with maximum of three participants includes experimental individual work with approximately 70 years old bones and provides the participants first-hand knowledge of how to perform bone DNA typing.
- Procedures for processing and DNA typing of bone samples are shown on concrete old bone samples and the most of the steps are experimentally performed by the participants.

## Extraction procedure



1. Cleaning of the bones for remove surface contamination and inhibitors:
  - - Mechanical cleaning (physical removal of bone surface with drilling; in tooth samples radiation with UV). To prevent bone warming during drilling and cutting we frequently use liquid nitrogen
  - - Chemical cleaning (washing in detergent, water and ethanol)
2. Powdering of the bones
3. Decalcification and lysis
4. Purification of genomic DNA

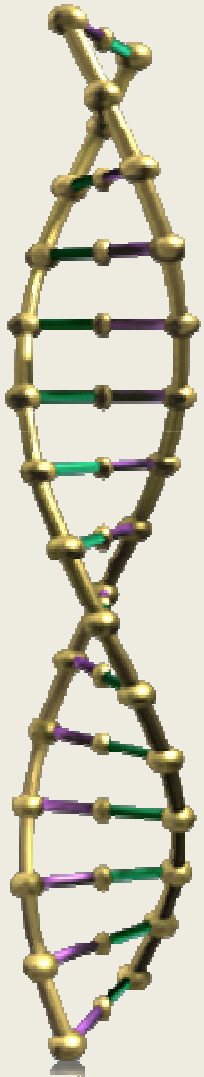
## Measures for preventing DNA contamination in laboratory



- Clean all tools for processing of bones and teeth after use with bleach (6% sodium hypochlorite) or with DNA Away
- Wash away the detergent with several washes with water and ethanol and leave tools to air dry



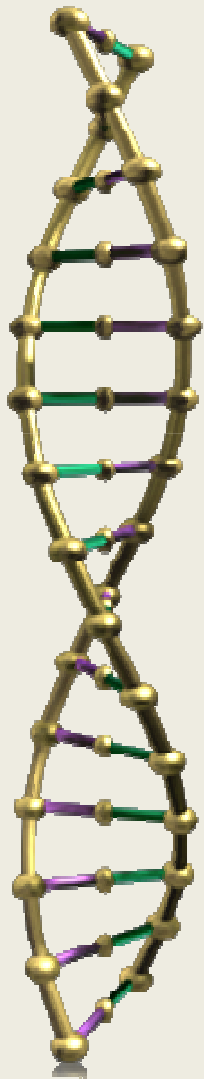
## Measures for preventing DNA contamination in laboratory



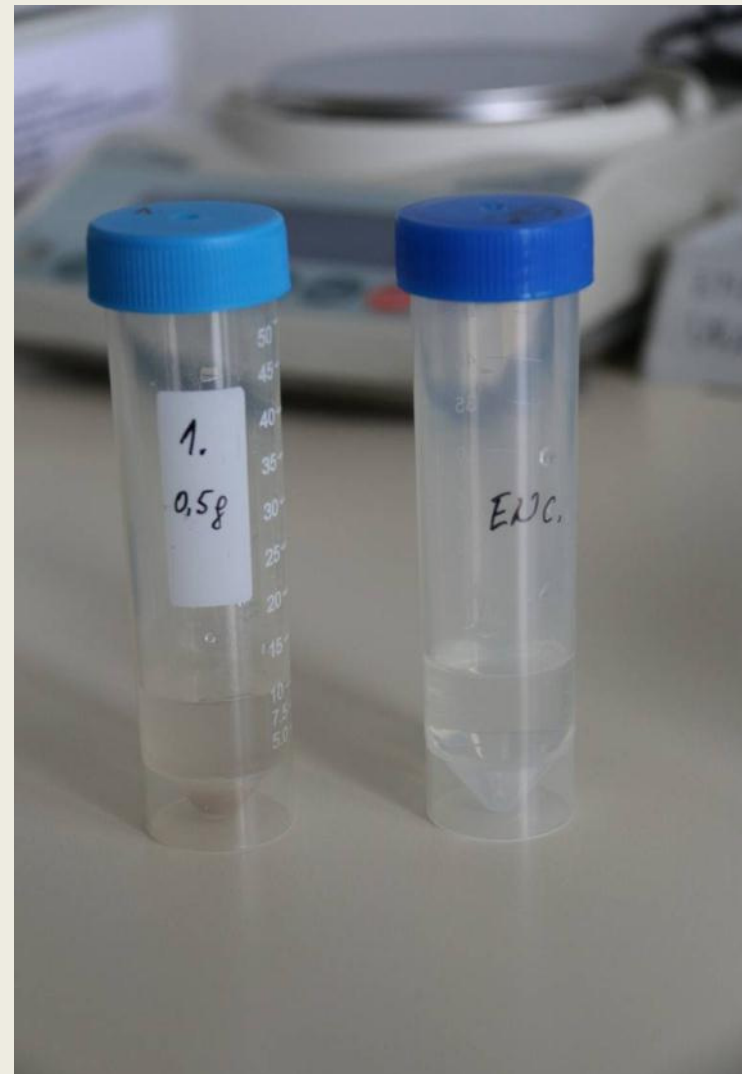
- We use the room for processing old bones and teeth exclusively for this kind of biological material and not for high-template DNA samples (saliva, blood)



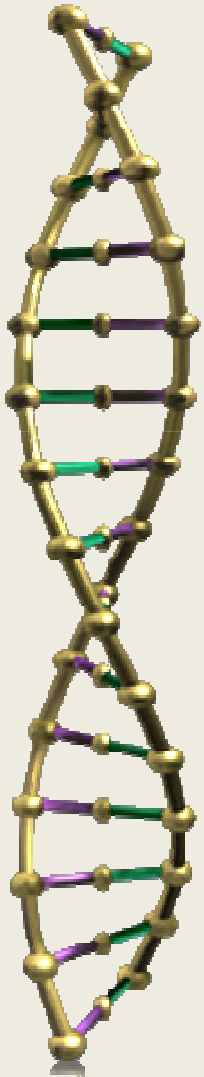
# Measures for preventing DNA contamination in laboratory



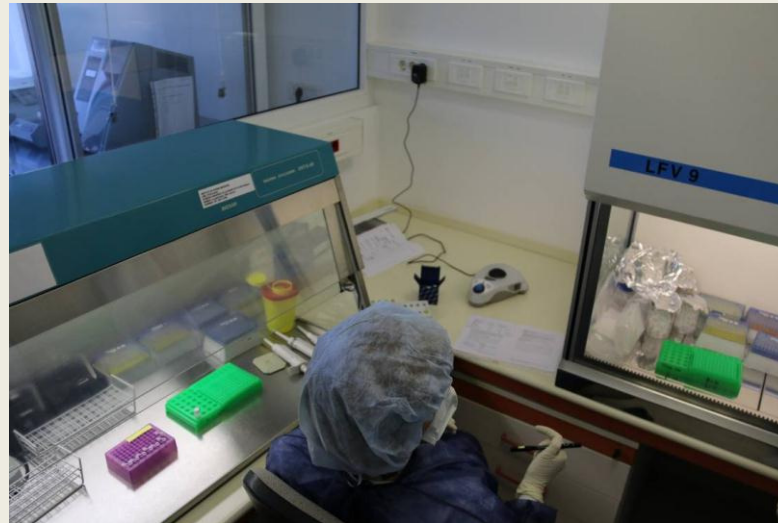
- For monitoring the cleanliness of the isolation reagents and laboratory plastics, and cross-contamination during the procedure we always use extraction negative control



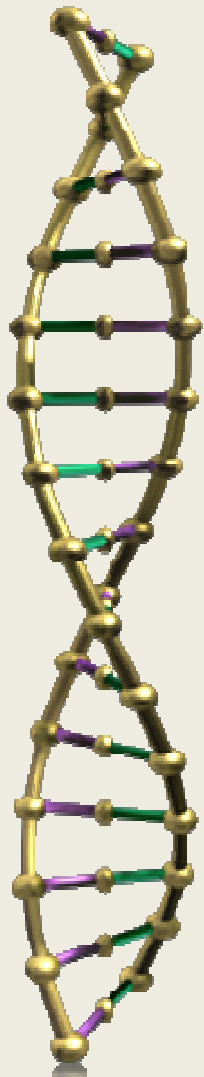
## Measures for preventing DNA contamination in laboratory



- The PCR room is used for setup of PCR reagent mix (first hood) and addition of DNA extracts to the PCR (second hood)



# Measures for preventing DNA contamination in laboratory



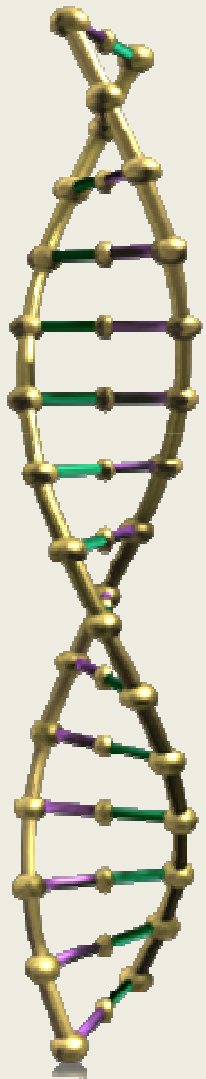
- All genetic profiles obtained from skeletal remains are compared to elimination database

Vzorec	D18S11P	D21S11	D7S82S	CSF1PO	RA1818	YFBI	D16S11	D5S49						
P.L.S.	14	14	30	2	11	12	15	7	1	9	12	13	8	12
L.P.P.	15	15	29	2	8	8	11	4	8	5	9	11	11	13
K.O.P.	10	14	29	31	10	11	12	14	7	7	9	8	11	9
K.V.	13	16	28	30	8	10	10	11	6	6	5	9	11	13
K.L.	12	13	30	31	2	8	12	13	8	8	9	9	11	12
G.M.	12	14	28	29	9	12	11	12	4	5	5	6	11	12
R.M.	13	14	30	21	10	11	6	12	8	8	5	6	10	10
An.M.	10	12	28	30	8	10	8	11	5	7	7	9	12	12
D.L.	13	15	28	29	8	10	10	11	4	5	2	9	11	11
P.P.	13	14	28	29	9	9	11	11	4	5	5	9	12	12
A.S.S.	10	13	29	30	10	11	11	12	5	7	5	9	11	12
P.R.	15	15	30	30	8	13	11	13	6	7	4	9	11	11
D.B.	10	11	29	29	8	11	10	11	9	9	5	12	12	12
M.M.	11	15	30	30	12	11	12	12	5	5	5	8	11	12
P.J.	13	12	29	30	11	11	8	9	8	8	12	11	12	13

Vzorec	DYS456	DYS38II	DYS390	DYS391	DYS448	DYS11	DYS385b	DYS393
G.M.	15	14	24	31	17	16	415	13
R.B.	15	13	24	30	16	17	415	13
An.M.	17	13	25	30	15	16	1114	13
R.J.	17	13	25	30	16	15	1618	13
P.P.	15	12	22	24	15	14	1315	13
A.S.S.	15	13	25	25	17	16	1415	13
P.R.	17	14	25	31	14	16	1114	13
D.B.	16	13	25	31	15	15	1114	13
ALM.	17	13	25	30	16	16	1114	13
P.J.	15	13	24	31	18	15	1415	13

Vzorec	Razlike glede na *CRS*	Območje
P. E. S.	HVI: 16298C HVII: 72C, 263G, 309.1C, 315.1C	HVI: 16030-16400 HVII: 55-407
L. Z. P.	HVI: 16318G HVI: 73G, 150T, 263G, 315.1C	HVI: 16030-16400 HVII: 55-407
R. G. P.	HVI: 16126C, 16182C, 16183C, 16189C, 16294T, 16296T, 16298C, 16357C HVI: 73G, 185C, 263G, 315.1C	HVI: 16030-16400 HVII: 55-407
Ph. Y.	HVI: 16298C HVI: 72C, 263G, 309.1C, 309.2C, 315.1C	HVI: 16030-16400 HVII: 55-407
K. I.	HVI: 16318C, 16362C HVI: 239C, 263G, 309.1C, 309.2C, 315.1C	HVI: 16030-16400 HVII: 55-407
G. M.	HVI: 16362C HVI: 239C, 263G, 309.1C, 309.2C, 315.1C	HVI: 16030-16400 HVII: 55-407
R. B.	HVI: identična CRS HVI: 150C, 263G, 309.1C, 315.1C	HVI: 16030-16400 HVII: 55-407
An. M.	HVI: 16069T, 16126C HVI: 73G, 185A, 188G, 238A, 263G, 298T, 315.1C	HVI: 16030-16400 HVII: 55-407
D. J.	HVI: 16294T HVI: 200C, 263G, 309.1C, 309.2C, 315.1C	HVI: 16030-16400 HVII: 55-407
P. P.	HVI: 16126C, 16294T, 16296T, 16364C HVI: 73G, 263G, 315.1C	HVI: 16030-16400 HVII: 55-407
A. S. S.	HVI: 16298C HVI: 72C, 263G, 315.1C	HVI: 16030-16400 HVII: 55-407
P. R.	HVI: 16069T, 16081T HVI: 239C, 263G, 315.1C	HVI: 16030-16400 HVII: 55-407
D. H.	HVI: 16126C, 16292T, 16294T, 16296T, 16364C HVI: 73G, 263G, 309.1C, 315.1C, 315.1C	HVI: 16030-16400 HVII: 55-407
ALM.	HVI: 16126C, 16294T, 16296T, 16364C HVI: 73G, 263G, 309.1C, 309.2C, 315.1C	HVI: 16030-16400 HVII: 55-407
P. J.	HVI: 16179C, 16359A HVI: 263G, 309.1C, 315.1C	HVI: 16030-16400 HVII: 55-407





# THANK YOU



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