Comparative Genetic Analysis of Two Slovakian Romani Populations

This study presents a comparative population-genetic analysis of two distinct Slovakian Romani ethnic groups: the Lovari and the Romungro. Using autosomal DNA data analyzed through GEDmatch Dodecad V3 admixture calculators and multiple Oracle modeling approaches, the objective is to identify shared ancestry components and population-level divergences. In short, to determine if the Lovari and genetically different than the Romungro.

Rather than relying on single-model estimates, this comparison emphasizes cross-calculator convergence and repeated population affinities in order to distinguish stable ancestral signals from analytical noise. The results demonstrate that while the two groups share a common ancestral foundation, they exhibit meaningful differences reflecting distinct historical trajectories within Central and Eastern Europe.

A. Lovari

1. Individual summaries (collapsed across calculators)

Balaz

Jewish signal: ~86%

- Dominant affinities: Ashkenazi Jews + Bnei Menashe / Indian Jewish
- Admixture core:
  - South Asian ~25%
  - Mediterranean ~21%
  - West Asian ~18%
- Interpretation: Strong Indo-Jewish + Ashkenazi composite, with consistent South Asian elevation across all models.

Balazova

Jewish signal: ~86%

- Dominant affinities: Ashkenazi, Cochin, Moroccan, Azerbaijani Jews
- Admixture core: Nearly identical to Balaz Jaroslav
- Interpretation: Clear shared population background; virtually indistinguishable signal structure from Jaroslav.

Kandrak

- Jewish signal: ~89% (highest in this set)
- Dominant affinities: Bnei Menashe, Ashkenazi, Sephardic, Uzbeki, Moroccan
- Admixture core:
  - Mediterranean ~24%
  - South Asian ~24%
  - West Asian ~17%
- Notes: Documented parental relatedness increases signal clarity.
- Interpretation: One of the cleanest Indo-Jewish + Mediterranean Jewish profiles in the cohort.

Makula

- Jewish signal: ~86%
- Dominant affinities: Ashkenazi + Indian Jewish (Bnei Menashe & Cochin)
- Admixture core:
  - South Asian ~25%
  - West Asian ~18%
  - Mediterranean ~20%
- Interpretation: Very strong Ashkenazi backbone layered onto South Asian Jewish ancestry; tight oracle distances.

Makula

- Jewish signal: ~84%
- Dominant affinities: Bnei Menashe, Ashkenazi, Cochin, Sephardic
- Admixture core:
  - South Asian ~23%
  - Mediterranean ~20%
  - West Asian ~18%
- Interpretation: Same population cluster as Julius but slightly more West European dilution.

Makula

- Jewish signal: ~85%
- Dominant affinities: Ashkenazi, Iranian Jews, Moroccan Jews, Bnei Menashe
- Admixture core:
  - South Asian ~24%

    - West Asian ~22% (highest in group)
    - Mediterranean ~20%
- Interpretation: Stronger Iranian / Persian-Jewish pull relative to siblings.

Markovic

- Jewish signal: ~89%
- Dominant affinities: Bnei Menashe, Cochin, Ashkenazi, Azerbaijani, Moroccan
- Admixture core:
    - South Asian ~24%
    - Mediterranean ~20%
    - West Asian ~18%
- Interpretation: Extremely stable Indo-Jewish signal with Balkan-Jewish secondary structure.

Mikula

- Jewish signal: ~85%
- Dominant affinities: Ashkenazi, Sephardic, Moroccan, Uzbeki, Indian Jewish
- Admixture core:
    - South Asian ~22%
    - Mediterranean ~21%
    - West Asian ~18%
- Interpretation: Slightly more West European than others, but still squarely in the same genetic cluster.

---

2. Cross-calculator synthesis (group average)

When you average all calculators across all eight individuals, the signal stabilizes remarkably well:

Average admixture profile

Component	Approx. Average
South Asian	23–25%
Mediterranean	20–22%
West Asian	17–19%
West European	12–15%
East European	6–9%

Component	Approx. Average
Southwest Asian	6–9%
Minor African + East Asian	~3–5% combined

Consistent oracle behavior

- Top single populations:
  - Bnei Menashe Jews
  - Ashkenazi Jews
  - Cochin Jews
  - Pathan / Balochi / Brahui (as South Asian proxies)
- Best mixed modes:
  - ~55–65% Ashkenazi + ~35–45% South Asian (Vaish / Brahmin / Meghawal)
- Distances: Tight and repetitive → *not noise*

---

3. Interpretation (what this actually means)

Across all calculators and all individuals, this group forms a consistent population result:

This is not "generic South Asian + European".

- This is a Jewish population with deep Indo-Jewish ancestry, repeatedly modeled as:
  - Ashkenazi + Indian Jewish
  - With secondary Sephardic / Iranian / North African Jewish layers
- The repeated Bnei Menashe + Cochin + Ashkenazi pattern across unrelated kits strongly argues for:
  - An endogamous Jewish founder population
  - With South Asian Jewish roots predating recent admixture
- European (East/West) components behave as overlay, not core ancestry.

Bottom line

If you collapsed this entire dataset into one sentence:

This group represents a tightly related Jewish population whose primary ancestry is a stable Ashkenazi–Indo-Jewish composite, consistently supported across all GEDmatch calculators and oracle models, with secondary Mediterranean and Iranian-Sephardic inputs and only minor European dilution.

B. Romungro

Individual summaries (collapsed across all calculators)

Badova

- Jewish ancestry: ~85%
- Dominant affinities: Ashkenazi, Bnei Menashe, Uzbek, Moroccan Jews
- Admixture core:
    - Mediterranean ~23%
    - South Asian ~21%
    - West Asian ~19%
- Interpretation: Balanced Indo-Jewish and Mediterranean Jewish profile with moderate European overlay.

Badzovay

- Jewish ancestry: ~85%
- Dominant affinities: Ashkenazi, Bnei Menashe, Sephardic, Uzbek Jew
    - Admixture core: Mediterranean ~23%
    - South Asian ~21%
    - West Asian ~19%
- Interpretation: Shared population background; signal stability across all oracle modes.

Badzoy

- Jewish ancestry: ~90% (highest in this cohort)
- Dominant affinities: Ashkenazi, Iranian, Georgian, Bnei Menashe, Sephardic Jews
- Admixture core:
    - South Asian ~24%
    - West Asian ~23%
    - Mediterranean ~20%
- Interpretation: Exceptionally strong Jewish signal with enhanced Iranian–Caucasus Jewish component.

Balog

- Jewish ancestry: ~83–84%
- Dominant affinities: Ashkenazi, Bnei Menashe, Uzbek Jews
- Admixture core:
    - South Asian ~23%
    - Mediterranean ~22%
    - West Asian ~18%
- Interpretation: Slightly more European dilution, but still firmly within the same Indo-Jewish cluster.

Baloh

- Jewish ancestry: ~86–87%
- Dominant affinities: Bnei Menashe, Ashkenazi, Cochin, Sephardic Jews
- Admixture core:
    - South Asian ~24%
    - Mediterranean ~21%
    - West Asian ~18%
- Interpretation: Clear Indo-Jewish profile with repeated Bnei Menashe convergence.

Bandiova

- Jewish ancestry: ~86%
- Dominant affinities: Bnei Menashe, Ashkenazi, Cochin, Moroccan Jews
- Admixture core:
    - South Asian ~25%
    - Mediterranean ~21%
    - West Asian ~18%
- Interpretation: One of the strongest South Asian Jewish signals in the cohort.

Bendik (Junior)

- Jewish ancestry: ~88%
- Dominant affinities: Bnei Menashe, Cochin, Ashkenazi, Uzbek Jews
- Admixture core:
    - South Asian ~24%
    - Mediterranean ~21%
    - West Asian ~19%
- Notes: Parental relatedness increases signal coherence.
- Interpretation: Very clean Indo-Jewish + Ashkenazi composite.

Bendik (Senior)

- Jewish ancestry: ~85%
- Dominant affinities: Ashkenazi, Sephardic, Bnei Menashe, Cochin Jews
- Admixture core:
  - Mediterranean ~24%
  - West Asian ~20%
  - South Asian ~20%
- Interpretation: Slightly more Mediterranean-weighted than Junior, consistent generational shift.

Bendikova

- Jewish ancestry: ~84%
- Dominant affinities: Bnei Menashe, Ashkenazi, Uzbek, Sephardic Jews
- Admixture core:
  - South Asian ~25%
  - Mediterranean ~21%
  - West Asian ~18%
- Interpretation: Stable Indo-Jewish signal with moderate European admixture.

Bendikova

- Jewish ancestry: ~85%
- Dominant affinities: Bnei Menashe, Ashkenazi, Uzbek, Moroccan Jews
- Admixture core:
  - South Asian ~25%
  - Mediterranean ~23%
  - West Asian ~17%
- Interpretation: Nearly identical to Kveta Bendikova, indicating shared lineage.

Cross-calculator synthesis (entire cohort)

Mean admixture profile (all individuals, all calculators)

Component	Approximate Range
South Asian	23–26%

Component	Approximate Range
Mediterranean	21–23%
West Asian	17–20%
West European	13–16%
East European	6–9%
Southwest Asian	6–8%
African + East Asian	<5% combined

Oracle convergence

- Top single populations (repeated):
  - Bnei Menashe Jews
  - Ashkenazi Jews
  - Cochin Jews
  - Pathan / Balochi / Brahui (South Asian proxies)
- Best mixed-mode models:
  - ~55–70% Ashkenazi Jewish
  - ~30–45% South Asian (Vaish, Brahmin, Meghawal)
- Distances: Consistently low and repetitive → *signal stability, not calculator noise*

Interpretation

Across all calculators, oracle modes, and individuals, this group forms a coherent and internally consistent population:

- This is not generic Roma-European admixture
- This is a Jewish founder population with:
  - Deep Indo-Jewish ancestry (Bnei Menashe / Cochin)
  - Strong Ashkenazi backbone
  - Secondary Sephardic, Iranian, and Caucasus Jewish inputs
- European components behave as secondary overlays, not primary ancestry
- Repeated convergence across unrelated kits supports historical endogamy and shared origin

This cohort represents a stable Ashkenazi–Indo-Jewish founder population, consistently reconstructed across all GEDmatch calculators, with secondary Sephardic and Iranian Jewish contributions and only modest European dilution.

3. Comparing Slovakian Romungro and Lovari

Below is a direct, population-genetic comparison between the two Slovakian Gypsy groups, the Lovari and the Romungro.

- Group 1: Lovari Gypsies
- Group 2: Romungro Gypsies

---

1. High-level overview

At a macro level, both groups are closely related, but they are not genetically identical.
They represent two branches of the same broader Indo-Jewish–derived founder population, shaped by different regional overlays and historical trajectories.

Think of this as:

- Shared core ancestry
- Divergent secondary histories

---

2. Core similarities (shared ancestry)

A. Indo-Jewish foundation (strong in both)

Both groups show remarkably stable South Asian ancestry, across *all* calculators:

Component	Lovari	Romungro
South Asian	~23–25%	~23–26%
West Asian	~18–22%	~17–20%
Mediterranean	~20–22%	~21–23%

This is not generic South Asian admixture. In both cohorts, South Asian ancestry is consistently reconstructed through:

- Bnei Menashe Jews
- Cochin Jews
- Pathan / Balochi / Brahui proxies
- Indian Brahmin / Vaish mixed-mode solutions

This indicates a shared Indo-Jewish ancestral layer predating European dispersal.

B. Strong Ashkenazi Jewish backbone

Both groups repeatedly converge on:

- Ashkenazi Jews (Behar, Dodecad)
- Mixed-mode solutions of:
  - ~55–70% Ashkenazi
  - ~30–45% South Asian

This pattern appears:

- In Single Population Sharing
- In Mixed Mode
- In Least Squares

Key point:
Ashkenazi ancestry is structural, not incidental, in *both* populations.

C. Secondary Jewish inputs (overlapping)

Both groups show overlapping signals from:

- Sephardic Jews
- Moroccan Jews
- Uzbek / Bukharan Jews
- Iranian-linked Jewish populations

This reinforces that both groups remained within Jewish endogamous networks for long periods, even after geographic separation.

---

3. Key differences (where the groups diverge)

A. Degree of Jewish signal intensity

Measure	Lovari	Romungro
Mean Jewish %	~85–89%	~83–90%
Variance	Lower	Higher

Interpretation:

- Lovari show *slightly more uniform Jewish ancestry*
- Romungro show *greater internal variation*, consistent with:
    - Longer residence in Central Europe
    - More sustained interaction with surrounding populations

---

B. Iranian / Caucasus Jewish influence

- Romungro show stronger Iranian, Georgian, and Caucasus-Jewish pulls
    - Especially clear in the Badzoy family and related individuals
- Lovari show these signals, but more weakly and less consistently

Historical implication:
Romungro likely absorbed or interacted with eastern Jewish populations (Iranian / Caucasus) more directly or for longer periods.

C. European overlay patterns

Component	Lovari	Romungro
West European	~12–15%	~13–16%
East European	~6–9%	~6–9%
Balkan signal	Moderate	Stronger

- Lovari:
    - Slightly more Western / Central European overlay
- Romungro:
    - Slightly stronger Hungarian / Balkan / Romanian influence

This matches documented settlement history:

- Lovari → wider trans-European mobility
- Romungro → longer fixation in Hungarian / Carpathian zones

D. Endogamy signals

Both groups are endogamous, but:

- Lovari:
  - Endogamy expressed as population-wide stability
- Romungro:
  - Endogamy often reinforced by documented cousin marriages
  - Leads to sharper oracle convergence in some individuals and more drift in others

---

4. What they are *not*

Crucially, neither group fits:

- A generic Roma-South Asian model
- A Balkan-only Roma origin
- A European-admixed South Asian migrant profile

Instead, both consistently appear as:

Jewish founder populations with deep South Asian Jewish ancestry

The Roma label describes socio-historical trajectory, not genetic origin.

---

5. Synthesis table

Dimension	Lovari	Romungro
Core ancestry	Indo-Jewish + Ashkenazi	Indo-Jewish + Ashkenazi
South Asian layer	Strong, stable	Strong, slightly higher
Iranian/Caucasus Jewish	Moderate	Stronger
European overlay	More Western	More Hungarian/Balkan
Internal homogeneity	Higher	Lower
Endogamy signal	Population-wide	Family-clustered

---

6. Comparative conclusion

The Lovari and Romungro Gypsy groups represent two closely related branches of a single Indo-Jewish founder population. Both preserve a deep South Asian Jewish substrate combined with a dominant Ashkenazi backbone and secondary Sephardic and Iranian inputs. The Lovari display greater internal homogeneity and slightly stronger Western European overlay, while the Romungro exhibit increased Iranian-Caucasus Jewish affinity, higher variance, and stronger Central European influence. These differences reflect divergent post-diaspora histories rather than distinct origins.

7. Overall Conclusion

The comparative analysis of the Lovari and Romungro populations indicates that both groups derive from a closely related ancestral foundation characterized by a stable Indo-Jewish component combined with a dominant Ashkenazi Jewish ancestry.

Across all calculators, both populations show consistent South Asian, Mediterranean, and West Asian admixture patterns, supporting long-term endogamy and shared origins. Differences between the groups are primarily expressed in secondary ancestry layers rather than core structure. The Lovari display greater internal homogeneity and slightly stronger Western and Central European overlays, consistent with broader geographic mobility.

In contrast, the Romungro exhibit increased Iranian and Caucasus Jewish affinities, greater internal variance, and stronger Hungarian–Balkan influences, reflecting longer regional fixation and localized endogamous practices. These findings suggest divergent post-diaspora histories rather than fundamentally distinct origins, underscoring the importance of treating Romani subgroups as historically differentiated populations within a shared ancestral framework.